APHASIA THERAPY

GUIDELINES FOR HOME TRAINING

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REGISTER No. K 9389

A dissertation submitted in part fulfillment

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DFDICATED

to

my life partner

for the love, understanding and constant encouragement

You have enriched my life beyond measure

CERTIFICATE

This is to certify that the dissertation entitiled, "Aphasia Therapy : Guidelines for Home training" is a bonafide work in part fulfillment for the degree of Master of Science (Speech and Hearing) of the student with Register No. M 9309.

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DECLARATION

This dissertation entitled " Aphasia Therapy : Guidelines for Home Training " is the result of my own work undertaken under the guidance of Dr. P.Karanth, Prof. and Head, Dept. of Speech Pathology, All India Institute of Speech and Hearing, Mysore, and has not been submitted earlier at any University for any other diploma or degree.

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CONTENTS

INTRODUCTION

Language therapy for aphasias has always presented a challenge to aphasiologists. Therapy for aphasia has a long history-both in terms of years as well as the number of techniques used. The first recorded intervention of aphasics was way back in 1558. (Benton and Joynt, 1960). Most of the aphasia therapies have developed through trial and error. Initial treatments were very crude using herbs, potions, leeching and blistering. Prior to the twentieth century, aphasic retraining techniques were similar to the training techniques used with children.

The beginning of twentieth Century was dominated by retraining techniques. The two world war with a large number of head injured soldiers evoked a surge of interest in aphasia rehabilitation and a large number of therapy techniques were developed. Therapies of all sorts were tried out without any relevance to theory and without any knowledge of their effectiveness. At around that time, many studies were carried out to find the effectiveness of language therapy and the conclusion of these studies were that language therapy was effective in the rehabilitation of aphasia.

The 1950's and 60's saw a variety of therapeutic techniques - simulating real life situations; role-playing; lip and tongue exercises; articulatory drills; multisensory approach; activities for reading, writing; conversational

practice; card index plan; shifting dominance; singing and lip reading exercises. All these used some form of a stimulation. Thus two opposing views of aphasia rehabilitation developed and has dominated the field throughout the history of aphasia rehabilitation.

1. aphasia viewed as the loss of Language where re-eduction is the main focus of therapy, and

2. aphasia believed to be due to the impaired ability to gain access to language where stimulation - facilitation was the main focus of therapy. Most of the therapy techniques even today use some or the other form of stimulation.

In the last twenty years or so, research has focused on developing techniques for various subtypes of aphasia. Many specific approaches have been developed thus classifying the aphasia therapy techniques into general techniques and specific techniques. Some of the specific techniques are Melodic intonation therapy (sparks, Helm and Albert, 1974), Voluntary Control of Involuntary Utterances (Helm and Barresi, 1980); Helm Elicited program for syntax stimulation (Helm-Estabrooks, 1981); Visual action therapy (Helm and Benson, 1978).

The scene in India is different. General stimulation approaches have been largely used in the rehabilitation of aphasia. Notall of the specific techniques work well with the Indian population due to cultural factors. Very few therapy techniques like linguistic profile therapy have been developed keeping the Indian population in mind.

Where as in the Western countries where rehabilitation of aphasia enjoys equal status with the rehabilitation of other disabilities, it is not so in India. In India, there is very limited awareness of aphasia and most of the rehabilitation centres are in the metropolitan cities making it difficult for the suburban and rural population to get the benefit of rehabilitation. The rehabilitation of aphasia by nature is a long term process; coupled with the distance, time, money and effort spent in reaching the rehabilitative centres, it discourages the patient and the family from attending therapy leading to a high drop out rate.

Under such circumstances, it becomes essential to think about alternative techniques which can facilitate the patients without placing too much constraints on them. Hence, an attempt is made to develop a home training kit for those who cannot avail therapy at rehabilitation Centres due to various reasons. Unlike the Western countries, in India, there are the family members of the aphasic who can devote time to training the aphasic at home. This home training program is for the clinician and is not meant to be given to the patient directly. The clinician is expected to thoroughly assess the patient before introducing the home training program. The program should be introduced in stages and should be monitored often. The kit, hence, can be used only under the supervision of the clinician.

REVIEW OF LITERATURE

Arthur Benton (1963) aptly stated that the history of aphasia "begins at the beginning," for as long as humans have enjoyed the gift of language they have been subject to language disturbances through injury or disease. Informal attempts to "retrain" aphasic individuals have occurred throughout history as a consequence of the natural inclination of humans to heal. Therapy for aphasia has a long history with Benton and Joynt (1960) Mho cited some of the first recorded instances of both natural recovery and intervention way back in 1558. It was BROCA's suggestion in 1865 that, intensive and prolonged treatment would bring about a considerable improvement in the patients condition. It was, however, Bateman's assertion in 1890 that "re-eduction" is of value in attempting to "re-establish man's noblest prerogative - the faculty of articulate language "which led to the emergence and establishment of language therapy as a profession.

Prior to the twentieth Century, therapeutic retraining techniques used with aphasic patients resembled those used in training young children with emphasis being placed entirely upon the use of the five sense. This methodology, however, tended to be artificial, consequently, little progress was made in aphasia therapeutics and various workers began to look upon retraining techniques as hopeless.

Mill's paper in 1904 threw new light upon the treatment of the aphasic. His study pointed out that the aphasic,

because of prior experience and already organised brain function; presented a different teaching problem from the child. In addition he felt that the limitation of the aphasics training to pavlovian methodologies alone usually proved inadequate. Mill's paper not only discussed the methods used with aphasic patients but also the nonliguistic aspects of the patient's rehabilitation management (i.e, emotional factors, premorbid intelligence, and education). He noted that different methods are appropriate for different patients and syndromes and not all patients benefit from retaining to the same degree. He also mentioned the influence of spontaneous recovery on the course and extent of recovery. Mills' work marked one of the turning points in aphasia therapy because his paper was the first in English to address recovery and rehabilitation in aphasia and although his work was done over a century ago, his observations and approach to aphasia rehabilitation are remarkably similar to much present - day practice and thought.

The first world war saw the emergence of several hospitals for the brain injured patients. It was in Germany that the idea of treatment for the disorders of language due to brain injury began. Following which various authors wrote about their experience with brain damaged patients. Significant among them were Froeschels, Isserlin, Henry Head and Goldstein's contribution to the development of aphasia therapy following the world war. This developing interest was greatly stimulated by the large number of brain injured patients who needed therapy as an aftermath of the world war.

This was the population which offered a significant challenge to aphasia therapists and indicated a much felt need for developing new ideas in the complex field of aphasia.

Rehabilitation of aphasics received much attention only after the second world war when the effectiveness of the therapy techniques began to be evaluated. Because of the emergency conditions of the soldiers during the second world war, treatment was developed without reference to theory, As a result of which therapy of all kinds were applied with little or no knowledge of its effectiveness or its expectations. Aphasia therapy was opportunistic rather than planned and the results obtained eve-r neither uniformly good nor Uniformly bad. Nevertheless, significant improvement was observed among aphasic patients following re-education (Butfield and Zang will, 1946).

Weisenburg and MCBride following a five year study concluded that re-education increased the rate of recovery, assisted in facilitating the use of compensatory means of communication, and improved morale. (Weisenburg and McBride, 1935).

Until the early 1940's the treatment of aphasia concerned itself primarily with the post traumatic patients. Concomitanty, increased tensions of life produced a growing number of cerebro-vascular accidents due to hypertension. Therapy programs then began to be dedicated to the rehabilitation of the civilian populations becoming aphasic

due to CVAs and speech therapy services were being provided to the aphasics at rehabilitation centres.

Several informational publications, workbooks, manuals, and other treatment guides for ho** by the families and friends of aphasic patients began to appear in the post world war II period.

One of the first studies of re-education in the post stroke population war carried out by Marks, Taylor, and Rusk, 1957). The results supported the idea that there is significant functional benefit for aphasic patients who are exposed to language training in a rehabilitation setting, especially those with expressive aphasia.

In a retrospective study of 69 patients, Vignolo (1964) categorized patients into two groups : 42 patients received speech therapy and 27 were untreated. He concluded that there is a spontaneous evolution in the direction of recovery of function and that re-education has a specific effect if it was administered for more than 6 months.

The studies on the effectiveness of speech therapy, concluded the following:-

a. Retraining was effective

b. The post traumatic aphasic enjoys a better outcome than the post stroke aphasic

c. The early initiation of speech therapy enhances recovery

d. Younger patients fare best

e. Expressive aphasics recover the highest levels of language performance, followed by receptive and global aphasics (But field & Zang will, 1946; Luria, 1948; Eisenson, 1949; **Wepman,** 1951).

There are certain variables particularly relevant to recovery form aphasia. They are:

1 . **Spontaneous Recovery** '• -

Some natural recovery takes place in the majority of patients with or without intervention and this is usually in the period immediately following onset. Spontaneous recovery is a potent variable in aphasia rehabilitation. Spontaneous recovery is the period during which structurally undamaged portions of the brain regain function following an insult (Luria, 1970) Luria explains spontaneous recovery as a temporary depression or diaschisis of function of certain areas rather than a destruction of brain tissues as was assumed another mechanism of recovery could be the adaptive transfer of function form one area to an other and re-organization .

Luria referred to a period of 6-7 months post-onset as the time when spontaneous restitution takes place, there is however, a lack of consensus about the duration of the spontaneous recovery period. Vignolo (1964) found greatest improvements in the first 2-3 months post on-set and recovery rate dropped significantly after 6 months. Culton (1969)

found that rapid spontaneous recovery of language function as well as spontaneous recovery in intellectual function occurred in the first month following the onset of aphasia and it does not occur after 1 year. Sarno and Levita (1971) found greater change within a 3 month than a 6-month post period.

Spontaneous recovery is believed to be different depending upon the type of etiology (Kertesz, 1976) such as cerebral infarcts, subarchnoid hemorrhage and faster recovery (Butfield and Zang will, 1946), Wepman, to recover faster than patients with thromboembolic disease (Johnson, 1975).

2. Age & Recovery :-

The consensus is that younger patients do better than older patients (Eisenson, 1949; Wepman, 195.). Kertesz and McCabe (1977) found that younger patients had a higher initial recovery rate.

3 Type and Severity of Aphasia and Recovery :-

Patients with different types of aphasia syndromes recover differently. It has been observed that conduction and anomic aphasics have a good prognosis for recovery (Benson, 1970, Kerterz, 1979, a 1979b).

All the investigators ave reported that the more severe aphasias do no recover as well as milder forms (Kertesz and Mc Cabe, 1977, Sands et al., 1969., Schuell et al., 1964).

4. Recovery Patterns :-

Auditory comprehension improves more than expression and this has been supported by a number of studies. Vignolo (1964) noted that the receptive aspect tends to improve more than expressive. Ludlow (1977) found no difference in the sequence of recovery (fluent and nonfiuent). The aphasics tended to recover the same structures used premorbidly.

5. Time Since Onset & Recovery :-

In a retrospective study of the evolution of aphasia, Vignolo (1964) reported that as the time interval from onset increased, the number of patients improving decreased. Time since onset emerged as an important prognostic factor; 2 and 6 months from onset seemed to be important milestones, similar findings were reported by sands et al., (1969) print et al (1978), ReinVang and Envik (1980).

6. Psychosocial & Other Factors :-

Certain psychosocial symptoms, such as depression anxiety, and, paranoia have a negative effect on the outcome (Benson, 1979a, 1979b 1980., Lebrun, 1980) patient's psychosocial state and premorbid personality as important prognostic factors. Eisenson (1949, 1964, 1973) felt that patients with outgoing personalities are likely to recover more than those with introverted, dependent rigid personalities.

THERAPEUTIC APPROACHES :-

"There are as many methods of treating aphasia as there are aphasics" (Wepman, 1953). Literally, there are many varieties of treatment techniques cited in the literature, depending for the most part upon the training and background of the therapists rather than upon the needs of the patient. Some follow educative (drills), some Psychosocial while others stimulation approach. Various therapeutic aspproaches can probably be traced back to two main opposing views that dominated throughout the history of aphasia rehabilitation.

a. Aphasia viewed as the loss of language, or

b. Aphasia believed to be due to the impaired ability to gain access to language.

The direct-structured pedagogic approaches, one of the earliest approaches emphasing re-education, are based on a theory of aphasia as a language loss while the stimulation facilitation methods generally follow an impaired access theory.

METHODS OF APHASIA THERAPY :-

As a result of the divergent theories relevant to the variables which affect language recovery in aphasia, a variety of therapeutic techniques have been suggested. Because of the great diversity of approach, methods are almost impossible to classify.

As an alternative to speech therapy some of those who

hold that aphasia is an irreversible condition recommend that the patient be exposed to language stimulation such as watching television, reading aloud and participating as much as possible in speaking situations (Taylor, 1964). This approach suggests that recovery takes place under the combined effects of spontaneous recovery and verbal stimulation and is offered as a substitute for formal treatment. The underlying principle of this method is that aphasia recovery is something like foreign language learning and the more one hears the language spoken the more likely is the possibility that one will learn to speak. Thus the patient's environment should provide as much verbalization as possible.

The interaction between aphasia therapist and the patient was regarded by few therapists to add to the effectiveness of language training. Language restoration is facilitated by allowing the patient to make all speech attempts without inhibition or control from a therapist. (Agranowitz, 1959, West, 1965). Activities simulating real life situations like telephoning, ordering from a menu, role playing, pantomime and impersonation were employed. (Backus, 1945, Agranowitz, 1959, West 1965, Roone 1967).

Activities for reading, writing and exercises for muscles for speech, imitating lip and tongue movements articulatory exercise materials and drills were used by therapists who believed in the principle of retraining. These materials were, however, adapted to adult interests

(Longerich, 1954).

Some clinicians advocate a multi sensory approach rather than attempts to isolated modalities during training, some workers have emphasized that one selection of a vocabulary must be based on its potential usefulness in daily life (sheehan, 1948, schuell, 1955, Taylor 1958). While others indicate that tecahing materials must be selected according to a patient's premorbid interests (Backus, 1947, Longerich, 1954; Schuell, 1955; Wepman, 1963).

Conversational practice, rhythm practise, lip reading training, singing and shifting dominance have been tried. Few authors like Taylor (1964), and Jacobson (1965) have advocated a highly structured approach based on modern linguistic theory. Some clinicians concentrate on building vocabularies around a common theme such as body parts or house furnishings. Similar to this technique there are those who teach "associated" words. Goda (1962) recommended using the patient's spontaneous responses as the material for treatment.

Luria (1966) used a method called "card index plan" where a post traumatic mildly impaired aphasic was trained to write down on separate cards, fragments of the theme he has to relate and them arrange the cards into their proper order an speak from the,. Luria thus gave the idea that a defective internal system can be replaced by an external aid.

Some of the treatment methods have been based on the

idea that the language dissolution observe in aphasia should be viewed as a state of regression mirrors, during its recovery, the stages of language acquisition in a child. Accordingly, clinicians taught phonemes in the order of acquisition observed in children. Lenneberg, however, opposes this view stating that when aphasic symptoms subside in an adult patient, he does not traverse the infant's stage of language learning.

GROUP THERAPY :-

The rational for group therapy rests on the idea that since speech is a social behavior the group setting provides the natural milieu in which to practice speaking. (Sheehan, 1946; Corbin, 1951 Wepman 1951). Group therapy enhances the possibility that there are psychotherapeutic gains to be realised when patients are with other aphasics. Group method was found to be a useful supplement to individual treatment. (Bloom, 1962; Boone, 1967).

It has been found by many authors that aphasic patients often make gains unrelated to the specific language skills being taught. It has been found that teaching in one modality helps to stimulate and reinforce learning in another modality. Hence direct methods may not be the most effective means; rather therapy should make use of the patient;s most intact modalities to teach those skills for which he has the greatest loss. (Eisenson, 1964, Boone, 1967;). Incidental learning was found to be more effective than goal directed

learning in aphasic patients.

Besides speech therapy, psychotherapy and drug therapy have been used with aphasic patients. Direct psycho therapy was found to be effective in reducing emotional problems in aphasics and resulting in verbal changes (Blackman, 1948).

Sodium amytal was used by Linn (1946). He observed "striking improvement in speech" and concluded that although the amytal does not reverse an organic process, its use may make it possible to hasten the rehabilitation of patients. Critchcey (1952), Bergman and Green (1951) observed no improvement in speech following sodium amytal administration.

Broadly, the various techniques can be classified as

1. General Techniques &

2. Specific Technique

1. GENERAL TECHNIQUES :-

Wepman (1953) believes that all aphasia therapists administer "stimulation therapy". Some of the techniques which use this approach are the Auditory stimulation approach by schuell (1955), stimulation facilitation approach by Wepman (1951) and Visual-auditory approach by Eisenson (1964).

Stimulation - Facilitation Approaches :-

According to Wepman, Aphasia therapy like any other therapy is designed to help in changing behavior, not in the confines of a therapeutic setting alone, but in life, and it must be tailored to the neurological, linguistic and social needs of the patient. Wepman believed that the primary role of the aphasia therapist was to "Stimulate" languane in order to facilitate language performance. Wepman (1951) rejected the notion of aphasia as a specific speech or language disorder and interpreted the disturbance as a "disorder affecting the patient's total reaction pattern due to a disturbance of the integrating capacity in the cortex". His "indirect" stimulation approach was the natural result of his views on the nature of the disorder.

Wepman believed in three aspects which were important in the recovery process. They are,

1. What is done to any with the patient by any external agency. (Stimulation).
2. What the impaired nervous system is capable of doing (Facilitation) and
3. What the state of the internalised drive of the patient might be (Motivation).

STIMULATION :-

Patients differ in their ability to be stimulated.

Some patients can be stimulated while others cannot. Therapy is organised, goal directed stimulation, based and his motivation. A common observation during the recovery process is the tendency for patients to develop language forms quite unrelated to the therapy. Vocabulries are used which are considered as old recall patterns, in the manner in which they were produced prior to the trauma. Therapy succeeds in stimulating the patient to produce particular language forms and in doing so, permits the patients to function in language generally, rather than specifically.

The content of therapy serve only to stimulate the patient to produce the integrations necessary for language, but does not convey specific new learning or new Vocabulary to the patients.

FACILITATION :-

Facilitation relates to the physiological state of the organism. Aphasia therapy facilitates the patient as he prepares to function i.e., when he is ready to produce language he becomes able to do so. Facilitation refers to the ability to increase the flow of energy into the system which permits it to form new integrations for language, utilising the nervous tissue present which seems incapable of spontaneous function.

Aphasia therapy reduces the impedance against function by its stimulation effect. The impedance here is thought of as a destruction of the pathways which form the integration

necessary for language response, following trauma. The difference between stimulation and facilitation is that stimulation is external and cannot effect a change in the patient unless he is in a state or set or condition which permits the integration to be made when such a state does exist the stimulation has it effect and the patient's efforts are facilitated.

Facilitation is a bimodal concept. It is first the consequence of stimulation, that factor which assists the nonintegrated cortical structure to function in a more integrated manner. At the same time it is the physiological lowering of the impedance against organised cortical action.

MOTIVATION :-

A mere stimulation of neural system which is physiologically capable of functioning is not enough, a physiological state of readiness must also exist before maximal learning of the formation of new, operative neural integrations are possible. Motivation indicates the Jevel of goal-directed behavior possessed by the patient.

The aphasic patient functions best when he reaches a physiological state of high motivation. The therapist must be constantly aware of the patient's readiness to act in a particular area.

Wepman states that the concept of stimulation. Facilitation and motivation, form the constructs which are important in the recovery process. The interrelated and

one cannot produce therapeutic changes without the ather. He advanced the idea that group psychotherapy and family counselling were the most effective means of helping aphasic patients to function at maximum levels.

The most commonly used approach to aphasia therapy is represented by those who make primary use of auditory stimulation as a means of language restoration. This method is based on schuell's finding that impairments of auditory processing underling aphasia, and that all aphasics are impaired in auditory retention. As a result, Schuell and her group rely heavily on auditory stimulation with controlled stimulus presentation. Schuell does not feel that the role of the speech therapist should be that of a teacher. She views the therapists task as directed to communicating with the patient and stimulating the various language process which have been disrupted primarily through the auditory channel.

Schuell reports that aphasic patients need to hear and grasp meaningful sound patterns over and over, day after day, month after month, as long as even minimal aphasic symptoms exist.

Schuell emphasizes the importance of adequate stimulation, that is, the use of stimuli which are strong enough (i.e, slow, short or loud enough) to be meaningful to the patient who has suffered brain damage. The principles of

repetition and requiring on overt response to a stimulus are also stressed by schuell in the management of aphasia. Schuell urges the clinician to stimulate rather than correct the patient. Use of one language modality to facilitate another during treatment is very effective. Finally, schuell believes that the individuality of the patient and his language impairment is important and hence individual therapy should be given. Group therapy, according to Schuell, is a much less effective type of treatment than individual therapy.

Eisenson believed that the objective of therapy for an adult aphasic is to bring him as close as possible to his premorbid status as over all circumstances will permit. The ultimate goal of therapy was to help the aphasic patient find a purpose in life that is ahead of him. The emphasis was on their future roles in life and that read for persons close to them to accept them as important members of society despite language limitations and the economic implications imposed by the severity of their circumstances. The best pathway for stimulation recommended by him are the sensory and motor avenues. For some, aural mode for reception and graphic for production was considered and for some visual for reception and oral for production. Later, auditory-visual association were established where picture identification and repetition of the words followed by phrases and sentences were carried out.

Various forms of specific stimulation approaches were

defined by Taylor (1964).

1. Association Approach :-

Attempting to elicit associated words by structuring sessions around families of words and semantic units such as body parts, furniture, etc., using the maximum possible word environments for each target word.

2. Situational Approach :-

Everday situations are acted out, facilitating functionally useful learning vocabulary or statements.

3. Minimal Differences Approach :-

Similar sounding words and similar looking written material are used as stimuli for teaching.

Other varieties of stimulation. Appear to be less structured. These are variously called:-

1. "Environmental Stimulation :-

Every body around the patient talks to him as much as possible.

2. "Rapport Approach" :-

There is a warm relationship between the clinician and the patient without regard to the content and method of contact.

3. "Socialization Approach" :-

Individual or group session include informal "Fun" activities.

4. "Interest Approach" :-

Subjects are discussed which related to the patients previous group or individual work activities and interests.

5. "Psychotherapeutic Approach" :-

Problem of anxiety and loss of self-esteem are focused on and corrected.

DEBLOCKING METHOD :-

Weigl (1968) described a special kind of stimulation which uses an intact channel to eliminate a block in understanding or expression via other channels. A response is evoked in an intact channel. (e.g., recognition of a printed word) just before presenting the same stimulus to a blocked channel (auditory comprehension).

PREVENTIVE METHOD :-

This is a specific application of linguistic theory by Beyn and Shokhor Trotskaya (1966). Instead of object naming they worked in expressions as a whole, preventing the occurence of telegraphic speech.

COMPENSATORY APPROACH :-

This encourages the patient to use his own compensatory

strategies e.g. the patient who needs repetition to understand is encouraged to ask for it. Patients with word finding difficulty are encouraged to circumlocute (Holland 1977).

Indirect approaches, like content-centered discussion therapy (Wepman, 1972 1976_ and Divergent semantic therapy (Chapey, 1988b,) are intended to improve specific deficient language functions. Wepman's "nonlanguage, content centered discussion therapy" is conversation of a special kind. In wepman's approach, the clinician helps the patient keep on a topic, focus on ideas rather than on words. The patient was directed away from "struggle for accuracy in word finding" and towards through processes underlying the use of words. This approach was effective, according to Wepman, because it dealt with the true problem of the patient, which was an impoverishment of ideas rather than of words.

Content-centered discussion therapy places the patient in a position to exercise divergent language behavior where emphasis is on "Variety, quantity, and relevance of output" and where the patient must" . . . . . provide ideas in situations where a proliferation of ideas on some topic is required". (Chapey, 1981b).

The divergent semantic approach to therapy is based on the belief that spontaneous communication requires the use of both a divergent, and convergent semantic strategy. Aphasic patients are unable to produce the highest level central

nervous system integration. The highest level cognitive integrations are thinking, problem solving and creativity. Use of divergent tasks will, therefor, focus on the essence of the aphasic impaired ability to produce higher level cognitive integrations.

Guilford (1967) and other hypothesize, that divergent production involves the use of a broad search of memory storage which convergent production involves a narrow search of memory store. Use of both divergent and convergent tasks in therapy appears to facilitate the patients reorganization and retrieval of language.

PRINCIPLES :-

Begin with the tangible and move towards the representational.

- - - Begin with the concrete and move towards the abstract.

- - - Begin with the simple and move towards the complex.

- - - Begin with the real and move towards the possible.

- - Begin with actions upon objects and move towards the verbalizations concerning these actions.

Begin with exaggerated sensory stimulation and gradually decrease this exaggeration.

Begin with short responses and move towards longer responses.

- - Begin with continuous reinforcement and move towards intermittent reinforcement.

- - Begin with clinician reinforcement and move towards self reinforcement.

The divergent model of treatment includes two stages. The first involves the patients observing a group of normal adults, perhaps recorded on videotape, responding to a divergent task. The purpose is to orient the patient to the task and to provide a model for the patient to emulate later. In the second stage the patient carries out divergent tasks, and "..... intervention should focus upon strengthening the ability to retrieve numerous and varied semantic responses through continuous reinforcement of relevant responses".

Convergent techniques, such as cues to specific words, can be used to facilitate retrieval of words which had not been produced on a divergent basis. Chapey's several examples of divergent tasks include instructions to:

1. Say words that begin with or include a particular sound.

2. List problems inherent to a common situation.

3. List uses of an object, and

4. Put a word in different sentences. Patients can be asked to name as many items as they can think in a familiar category such as countries, states, familiar streets, or favorite foods.

Operant Conditioning & Programmed Instruction :-

The theory underlying the use of operant conditioning implies that the behavior which is desired exists in the patient's behavioral inventory and can be manipulated so that it will occur in a specifiable manner in response to specific stimulus conditions. Jacobs and Taylor, (1966) reported an experiment using poker chips as reinforcement in which an aphasic who had been treatment for seven years was able to increase and maintain her verb repertoire as evidenced by re-examination three months later. Goodkin (1966) used operant conditioning to alter verbal conseveration and inappropriateness in aphasic patients.

Programmed instruction can be considered as an outgrowth of the laboratory technique of operant conditioning. The programming of many types of materials requiring aphasics to perform a variety of tasks on automated devices has suggested that aphasics, even those severely impaired can lean to match visual configurations to perform visual oddity tasks, and to write their names (Taylor, 1966: Rosenberg. 1965). The programmed instruction presents items in smaller steps with more than systematically structured teaching procedure. It is also called the psycholinguistic approach.

The operations involved in language recovery is viewed as a continuum of skills beginning with the imitation of movement and proceeding to visual recognition, writing, auditory comprehension, and finally oral production clinical

obser-vatians of aphasic patients indicate that auditory and visual decoding behavior preceeded the learning of encoding behavior, therefore, a preverbal level, comprised of graded programs teaching imitation and visual recognition, provide the content for the first programmed teaching sequences. In other words, before any auditory oral coding behavior could be expected of the patient, certain nonverbal skills have to be mastered. These tasks consisted primarily of matching objects and pictures.

Aphasics tends to acquire writing skills earlier and more easily than oral skills. Infact, some patients never acquire verbal control despite their ability to acquire a considerable repertoire of written skills. (Taylor, 1966) Hence in the program, writing tasks are introduced before spoken language.

Programmed instruction approach considers automatic control of the linguistic elements essential to normal verbal behavior. Patterned responses are conditioned to carefully specified stimuli until these responses become automatic. The learner, therefore, has automatic control without the necessity for intellectualizing his responses.

It is necessary to grade skills with in each operation and appropriate vocabulary and structures of the programmed materials must be selected. The criteria for selection of materials were:

1. Phonemic simplicity,

2. Syllabic simplicity,

3. Grammatical regularity,

4. Picturability,

5. Portability,

6. Frequency of usage, &

7. Functional importance in daily communication.

Thus applying learning principles of shaping and differential reinforcement effective results can be obtained.

As the development in aphasia continued, clinical procedures were modified so that they reflect the characteristics of communication in the patient's real - life circumstances. As Florance, etal, (1980) put it, "Without addressing overall anticipated impact of intervention in the patient's life system, we can spend enormous energy on exercises and drills that may never improve the patient's out-of-clinic interactions". One approach to facilitating transfer form the clinic to the patient's living environment is to construct the clinical interaction between clinician and patient so that it is more consistent with real face-to-face conversation, Promoting Aphasic's communicative effectiveness of PACE therapy was designed to achieve this kind of interaction (Davis and Wilcox, 1981). PACE was developed out of a recognition that the standard direct-stimulation techniques do not coincide with the structure of natural conversation as closely as a structured treatment

interaction could. The objective of PACE is to maximize aphasic's ability to communicate independently.

PACE focuses the patient and clinician on ideas to be conveyed rather than on the struggle for linguistic accuracy. As turns are taken, patient practices both comprehension and expression in a context requiring true communication. PACE promotes the use of a variety of speech acts, success is measured relative to whether a message is conveyed. Procedures of PACE are derived from four principles:-

1. The clinician and patient participate equally as senders and receivers of messages by taking turns to convey messages to each other. This role switching allows a variety of feedback operations to occur, and permits the clinician to model desirable communicative behaviors for the patient.

2. The most powerful feature of PACE is an exchange of new information between the clinician and the patient, thus creating a truly communicative intersaction and making this procedure different from other treatment approaches. In PACE, message stimuli such as pictures of objects or actions are kept from view of the receiver. Usually a stack of stimulus cards is face down on the table, and the patient and clinician take turns drawing from the stack. The receiver does not know what the sender is trying to convey, and must try to figure out the sender's message.

3. The patient has a free choice as to which communicative

channels (modalities) he or she may use to convey new information. The clinician does not instruct or direct the patient to use particular strategy. Channels such as speech, writing, natural and conventional gesturing, pantomime drawing and pointing to pictures, printed words or objects in the room may be used either singly or in combination.

4. Feed back is provided by the clinician, as a receiver, in response to the patient's success in conveying message. Communicative success depends not just on what the patient does, but also on the active participation of the clinician as receiver. The patient's success depends in part on the clinician's ability to comprehend which is consisttent with natural communicative interaction.)

SPECIFIC TECHNIQUES :-

Springier and Weniger (1986) reported that the ultimate aim of language therapy is to enable the aphasic patient to manage the communicative interactions again. Though they pick up nonverbal cues relatively well, they often display considerable difficulties with these features of discourse which involve specific linguistic capacities. Therefore, specific methods for different types of aphasia began to be used which tapped their linguistic and cognitive abilities. Few of the specific techniques are :-

1. Melodic Intonation Therapy (MIT) :-

In 1942 the German neurologist Kurt Goldstein pointed out that there are aphasic patients who are able to pronounce words in song that they are unable to pronounce under other circumstances. This observation has prompted aphasiologists and speech clinicians to use music and rhythm in the treatment of such patients. Mills (1904) suggested that it would be beneficial to use popular songs. However, experience indicates that it is difficult, to dissociate words strongly associated with a particular tune. Though the patient may benefit psychologically with popular tunes, it has little effect on production of prepositional or conversational speech. Backus (1937), Ustvedt (1937), Goldstein (1942) suggested that words and sentences be presented to the patient in rhythmic accentuation.

It was not until 1972, however, that a formal study was undertaken by Albert, Sparks and Helm in order to seriously explore the use of a singing technique to facilitate and stimulate the prepositional speech of severely impaired aphasics. Emphasis has been on recovery of formulation of propositional language rather than the motor aspects of speech production.

Albert, Sparks, & Helm were encouraged by the growing evidence that the right cerebral hemisphere is dominant for music and intonational contours (Spellacy, 1970; Blumstein, Cooper 1974) MIT was developed by hypothesesing that functions associated with the intact right hemisphere may be exploited for purposes of rehabilitating speech in left brain damaged

individuals. The name, melodic intonstion therapy, was first suggested by Sheila Blumestein, whose own research first identified the role of the right hemisphere in processing the intonational contours of spoken sentences.

While MIT is directed to language, some clinicians have reported success adapting it to improve slurred articulations and to reduce the frequency of phonemic errors in some aphasic patients. MIT has undergone various methodological changes. Sparks, Helm and Albert (1974) described a two level program in which real phrases and sentences are sung in both levels. Sparks and Holland (1976) later requires the patient to reproduce hummed patterns without words, while the remaining three require him to intone phases and sentences.

The MIT program, as described by Helm, is a hierarchially structured program that is divided in to three levels. In the first two levels, multisyllabic words and short, high probability phrases are musically intoned. The third level introduces longer or more phonologically complex sentences. These longer sentences first are intoned, then produced with exaggerated speech prosody and finally spoken normally. On all intoned phrases the clinician taps the patients left hand once for each syllable. Items are intoned very slowly, with continuous voicing, using simple high note-low note patterns based on the normal speech prosody of the phrase. Each syllable is sung separately, but a staccato approach is to be avoided.

Candidacy for MIT :-

1. Auditory comprehension should be better than verbal expression. Auditory comprehension should be preserved enough to include self-criticism of errors in verbal output. The presence of self criticism and ultimately self-correction is an important prerequisite to recovery from aphasia.

2. The patients should have fairly good emotional stability and reasonably good attention span.

3. The patients must be severely impaired in verbal expressions. The MIT program is geared to the needs of the poorly articulated, nonfluent or severely restricted verbal output that may be confined to a nonsense stereotypy.

4. The patients who improved the most had the poorest repetition skill prior to MIT. This suggest that the patient with repetition skill which is better than his other verbal abilities may not be a good candidate.

5. Poorly articulated speech, earning a rating of 3 or less on the BDAE profile of speech characteristics show good improvement with MIT.

MIT avoids the concept of re teaching the patient to speak. Instead, this method is directed at facilitating and stimulating the patient to produce what he still knows about language.

The efficacy of MIT has been described by various authors. It has been suggested that this highly motivating method may be effecting a psychological break through. The most acceptable hypothesis to account for the efficacy of MIT is that increased use of the right hemisphere dominance for the melodic aspects of speech increases the role of that hemisphere in inter-hemispheric control of language, possible diminishing the language dominance of the damaged left hemisphere.

2. Voluntary Control of Involuntary Utterances:-

In 1962 Goda suggested the clinicians use the patient's spontaneous speech attempts to determine treatment vocabulary rather than rely on prepared materials for language rehabilitation. In a 1964 study of aphasia rehabilitation, Vignolo summarized one approach to treatment as follows "First an automatic way to elicit a correct response is found. The response is then tentatively elicited in more voluntary ways. In eliciting responses, facilitation is looked for along the line of the Jacksonian automatic Voluntary dissociation".

Helm and Barresi (1980) described a method called voluntary control of involuntary utterances (V.C.I.U) in which the vocabulary is determined involuntarily by the patient. The one criterion guiding the clinician is that only the patient's real word utterances are accepted. Patient's spontaneous utterances form the basis for the

therapy; and the patient, not the clinician, determines the treatment lexicon. V.C.I.U. is based on the belief that virtually all aphasic patients have the ability to utter real words under some circumstances. The burden is on the clinician to identify this core involuntary vocabulary and help the patient bring it under voluntary control. Hence, this approach is called voluntary control of involuntary utterances of V.C.I.U. This approach can be used to improve verbal output in severally nonfluent aphasic patients whose speech is limited to the stereotypic production of a few real words.

The V.C.I.U. program begins with presenting each patient with printed words or phrases which he has been heard to utter during his formal education on with emotionally leaden words. If the patient was immediately able to read the word or phrase correctly, it was printed as an index card to be used for self-monitored drills. If instead of reading the word as printed, he utters a different real word, then the original word was discarded and the patient's real word utterance was offered.

Oral reading of the growing lists then gives way to more volitional propositional use of the target words through responsive naming and confrontation naming tasks and finally in conversation.

Candidacy for V.I.C.U :-

1. Patients having severely limited verbal output, often to a few real words used in a stereotypic manner.

2. Patients should be able to match words correctly to pictured objects and actions. Oral reading may be inconsistent with some tendency to utter incorrect, but related, words to stimuli. e.g., 'bed' for hammock.

3. Helm Elicited Program for Syntax Stimulation :-

Helm developed a program for the agrammatic patients which she called the syntax stimulation program, which was subsequently named Helm Elicited Program for syntax stimulation, or HELPSS (Helm-Estabrooks, 1981). Using this program, it has been suggested that agrammatic patients may improve in their ability to produce a wide variety of syntax for purposes of communication. With this technique, agrammatic patients produced longer and syntactically more complex statements that they produced in conversational speech.

The Helm Elicited program for SYNTAX stimulation is a hierarchially structured approach to therapy that uses a story completion format to elicit 11 sentence types. There are two task levels (A & 8) and multiple exemplars for each syntactic construction. Each exemplar is accompanied by a simple line drawing.

In level A, the clinician reads a short story (usually about two sentences in length) that ends with the target sentence. The story then is reread without the target sentence, which must be supplied by the patient. When level A has been completed for a particular sentence type, using a 90% accuracy criterion for success, the second level is introduced. In level B the story does not contain the target sentence, Instead the patient must produce the target as a logical completion of the story but without the benefit of having heard the target as part of stimulus. When score criterion has been reached for sentence type 1, level b, the patient is introduced to sentence type 2 at level A, and so on until he or she can produce all 11 types at both levels of difficulty.

The purpose of the program is to stimulate and facilitate grammatical speech and not to teach rigid and rote verbal output.

The type of sentences used are imperative intransitive, imperative transitives, interrogative, declarative transitive, declarative intransitive, comparative, passive, Yes No. Questions, direct and indirect object. Embedded sentences and Future.

E.g. Sentence Type 1 - Imperative intransitive.

Level A (clinician) "My friend feels dizzy, so I tell him 'Lie down'. What do I tell him?"
(Patient) "Lie Down".

level B (Clinician) "My friend feels dizzy, so I tell him what?

(Patient) "Lie Down".

Each story exemplar is usually accompanied with a related picture to increase the saliency of the spoken stimuli.

Candidacy for HELPSS :-

Helpss is a program for aphasic patients who display agrammatism and moderate to well-preserved auditory comprehension and is not appropriate for patients with little or no speech output or severely impaired auditory comprehension.

1. Aphasic Type :-

Broca's transcortical motor aphasia, anterior capsular/putaminal aphasia.

2. Speech Output :-

Nonfluent with restricted grammatical form and average phase length of 2 or 3 words, consisting mainly of substantive words.

3. Auditory Comprehension:-

Good single word and fair to good sentence and paragraph comprehension.

4. Psychological Features :-

Co-operative, good attention span and memory.

4. Treatment of Aphasic Perseveration (TAP) :-

The TAP program was developed with an attempt to deblock language performance by directly addressing perserverative behaviors. (Helm Estabrooks, Emery, & Elbert, 1987). The TAP program was developed for patients who manifest atleast a moderate degree of perseveration in teats of confrontation naming. The TAP program uses the same seven semantic categories as the Boston '"Singnostic Aphasia Examination (objects, letters, geometric forms, actions, numbers, colors) body parts). The TAP items, however, are different from those on the BDAE and were chosen on the basis of frequency of use, concreteness, length (most are 1 or 2 syllables), Phonetic/semantic variability and emotionality. Pictures are also used. Each item/picture is offered for confrontation naming. If the patient cannot name a term, as many as three of the cues may be used to elicit a correct response. After naming the item correctly with a cue, however, the patient must immediately name to confrontation, i.e., "So what is this"? The ultimate goal of the program is for the patient to name 90% (34/38) of the pictured stimuli with perservations occurring on no more than 10% (cr 4) of the items (progress is charted on graphs noting correct responses, Number of cues, & perseveration). If the patient does not show a pattern of slowly diminishing perseveration with slowly improving naming, the TAP is discontinued.

The cues given to the patient include oral reading of the target word written on a card, repetition of the word, after the clinician, unison speech providing initial phoneme of the target word, providing an open-ended sentence that might elicit the target word, gestural cue, tactile cue and so on.

Candidates for TAP Program :-

1. Patients who show a moderate to severe degree of perseveration in confrontation naming may be good candidates for TAP.

5. Treatment for Wernicke's Aphasia (TWA) :-

The treatment of Wernicke's aphasia is challenging. In 1948, Neilson and his colleagues pointed out that if taught to read, write, and do arithmetic, the Wernicke's aphasic would automatically relearn spoken language. The most striking evidence that auditory comprehension skills may be deblocked through a different modality is found in a study of VAT is 1982. Eight globally aphasic subjects treated with VAT improved significantly in auditory processing skills as measure by Porch Index of communicative ability (Helm, Fitzpatrick, Barresi, 1982). Improved auditory comprehension is also an common "side effect" of MIT.

Improvement in auditory comprehension skills as a result of improved ability to repeat words and phrases may be explained by a process Jones and Wepman (1961) called re-

auditorization; the transmission of aurally received stimuli into verbal responses.

Helm-Estabrooks and Fitz patrick have developed a treatment approach to Wernicke's aphasia based on the evidence that ability to repeat orally presented stimuli may be linked to the ability to process or understand these stimuli. This method, called treatment for Wernicke's Aphasia or TWA, uses written stimuli as the initial stable representation of the stimulus words TWA progresses from reading comprehension, to oral reading, to oral repetition, and then to auditory comprehension alone.

TWA begins by using the more intact modality of reading comprehension to stimulate oral reading. Words that are orally read correctly then are presented verbally for repetition and finally for auditory comprehension via a picture pointing task. The initial stimuli are those that the patient can read aloud correctly. Subsequent stimuli are added in a manner similar to that used in voluntary control of involuntary utterances until the patient is capable of handling minimal pair words (i.e, those differing by only one phoneme).

Candidacy for the TWA Program :-

As the name implies, TWA is a syndrome specific treatment approach. Furthermore, TWA is appropriate only for moderate to severe Wernicke's aphasia patients who have difficulty processing signal words through the auditory

modality. TWA candidates must demonstrate relatively good ability to understand written stimuli at the single word level (Picture - word matching skills) and some ability to correctly read picturable single words aloud.

6. **Alternative & Augmentative Communication System '• -**

Global aphasic patients are unable to use successfully any form of natural language and it is assumed that the extensive left hemisphere lesion usually associated with this syndrome has effectively erased nearly all linguistic knowledge. There are two option available for the global aphasic patients:

1. One could try to rebuild or reteach linguistic skills from the ground up, or

2. One could set natural language aside, and attempt to teach an alternate form of communication.

Froschels (1933) called the more prevalent, method "Brain gymnastics" because it involved massive amounts of drill, with the patient repeating and writing individual sound, then learning to repeat two connected syllables and then real words and so on. This method, however, seems to be ineffective. It was suggested by Geschwind (1965), Johnson, et (1976) that whole body command might be a basis for treatment of global patients.

Alternative or Augmentative Communication system have been used with the severely aphasic patients to provide a means of *very* basic functional communication. For those patients functioning at higher levels these systems may serve as a catalyst to recovery of *yet* higher linguistic abilities.

1. **Communication Boards :-**

It has been a common observation, that with appropriate training some globally aphasic patients can use a communication board effectively, provided the message is simple and the listener is insightful and demonstrates patience. Alphabet boards, or board? that contian only single words or ideas, are generally not effective for the globally aphasic person. Boards containing both picture and, its written equivalent are effective. Additional enhancement may be provided by constructing individualized communication boards containing words and/or pictures that *are* particularly useful to that person, pictures of wife, children, familiar household objects, and personal objects.

Training begins with only the target word being exposed. The clinician repeats the stimulus until the client can point unfailingly to the named item. The same procedure is followed for each of the item to be in the client's core vocabulary.

2. **Bliss Symbols** :-

The utilization of bliss symbols rather than pictures

frequently produce increased generalizations of communication. Bliss symbols *are* less complex to learn than words, they appear with the printed word(s) which they represent and the patient is not ed to spell or recognise words before beginning. Bliss symbols are superior to finger spelling or singing.

E.g. Man  Door  Water  Eye  Language 

3. **"Back to the Drawing Board" (BDB) :-**

BDB is designed to encourage aphasic individuals who are severely impaired in verbal expression to communicate feelings, needs and events through drawing. The stimuli used in this program consist of single-double-and triple panel uncaptioned cartoons. The use of cartoons is based on research evidence (Gardner, Ling, Glamm & Silverman, 1975). that even severely aphasic patients may appreciate visual humor in the from of cartoons. Furthermore, the emotional value of the stimuli (e.g., humor or anger) often enhances the performance of aphasic patients. Finally, the simply line-drawing style of cartoon's is relatively easy to copy.

The ultimate goal of the BDB program is for the patient to use drawing for *everyday* communication when other means of exchange are unsuccessful.

4. **American Indian Sign Code :-**

Madge Skelly and her colleagues introduced AMFRIND as a

supplemental communication mode for patients with severe apraxia of speech and aphasia. Skelly (1977) distinguishes AMERIND and sign language for the deaf: "Indian Hand Talk was created to provide a universal communication mode among the many tribes who did not share a common language". The sign directly depict concepts and concrete referents and are in many ways like pantomime. A "dialect" was developed so that the signs could be done with one hand. One advantage of this system is that it is understood by others without special training.

5. Communication Roll (Lemko, 1976; Hook, 1976) :-

Communication roll consists of two cylinders one fitting inside the other. The inner can be turned by means of a wheel placed on the outer roll. Printed on the inner roll is a list of words or sentences. These words are displayed via a small window on the external cylinder, these words can be changed from lesson to lesson.

6. Finger Spelling :-

Chen (1968) developed a system of finger spelling using the left hand. The signs resembled actual printed capital letters, thus aphasic patients can associate signed symbol with representative letters of alphabet. If there is a combination of gestures as well as sign formed with fingers it is called 'talking hand' e.g., Water a sign of W and pointing fingers to mouth.

7. Visual Communication :-

Baker et al (1975) and Gardner etal (1976) used a visual communication system which utilized a series of index cards, each containing a simple arbitrary (geometric) or representational (ideo graphic) form, denoting a meaningful units, Eight globally dysphasic patients were studied and attained varying levels of visual communication which involved.

1. Carrying out commands.
2. Answering questions.
3. Describing events.
4. Expressing feelings.
5. Expressing immediate needs.
6. Expressing desires.

These findings indicate that global patients can master the basics of an alternative symbol system, and that at least some of the cognitive operations necessary for natural language are intact despite the severe dysphasia.

7. Visual Action Therapy :-

Those who believe that aphasia is due to inability to gain access to what is known about language rather than "massive loss of language" developed the visual action therapy.

Gardner, Zurif, Berry and Baker (1976) need a visual communication (VIC) system with global aphasics. It consisted of real objects and a series of index cards containing simple, arbitrary, or representational drawings denoting meaningful units. Patients were required to carry out operations such as following commands, answering questions and describing events by manipulating the objects and cards, based on the patient's performance with these tasks, the investigators concluded that global aphasics do retain a rich conceptual system and some congnitive operations necessary for natural language.

There are several theoretical rationales to support the training of gestural output system of global patients:

1. Gestural communication may be used independently of verbal communication.

2. Hand gestures for manual communication require less refined control than the articulatory movements required for verbal communication.

3. Limb movements, unlike face movements, have more predominantly unilateral control.

4. The hand-arm, unlike the bucco/facial apparatus necessary for speech, is visible to the initiator and can be usually monitored.

Helm and Benson (1978) used a nonvocal, visually/gestural approach to the rehabilitation of globally

aphasic patients. They developed a method called visual action therapy (VAT) which trained severely aphasic patients to represent hidden items with hand/arm gestures the VAT method also include a program for bucco/facial apraxia in which all representational gestures involve the mouth/face. There are two more VAT programs called proximal Limb Visual Action Therapy and Distal Limb Visual Action therapy (Helm, Ramberger, Brownell & ALbert, 1985). It was found by the authors that training patients to gesturally represent objects involving proximal movements was easier than distal movements. Proximal movements include sawing, pretending to hail a cab. Distal movements include making the 'V' for victory, turning a screw driver.

All three VAT programs use real objects, line drawings of these objects, and pictures of a simple figure using the objects. The materials used are eight objects razor, telephone, cup, toy pistol, saw, hammer, screwdriver and black board eraser) and their contextual prompts if indicated (block of wood, block of wood with protruding nail, block of wood with protruding screw, and slate).

Each program consists of hierarchially ordered steps & levels that move the patient along a performance continuum from the basic task of matching pictures and objects to the communicative task of representing hidden items with self initiated gestures. Score sheets are used to document from one step or level to the next. Dependent test variables are used to measure the overall effectiveness of the programs

like the test items used in Porch index of communicative Ability (Porch, 1967).

VAT is divided into three levels, the first level contains twelve steps, while levels II and III contain 6 steps each. All directions and reinforcements are given non-verbally. Patient responses for each item at each step object are scored, one point for fully correct, on half point for self corrected, and zero for incorrect, A new step is introduced when the patient produces correct responses for every item at the training step. Each session beings with a review of the preceding step.

Candidacy for Limb V.A.T. :-

1. Global Aphasics with severely restricted expression and comprehension of spoken and written language are the best candidate for V.A.T.

2. Moderate to severe intransitive and Transitive limb apraxics benefit with V.A.T.

3. Patients who are alert, oriented and co-operative with good attention span benefit with V.A.T.

Candidacy for Bucco/facial VAT Candidates -

1. Patients having severely restricted verbal output despite moderately preserved or recovered auditory skills.
2. Patients having moderate to severe bucco/facial apraxia despite moderately preserved or recovered limb praxis.

8. Patients having good attention span and well motivated and co-operative.

8 Artificial Language Training in Global Aphasics :-

The system used was a modification of the one originally developed by Premack (1971) for chimpanzees. The primary elements of the system are symbols, varying in color size and shape which are functionally equivalent to words. They symbol/words were cut out from colored paper and sentences were written by arranging the words from left to right on a table top. Strings of sentences were at first extremely simple, consisting, for example of the word 'same' placed between two like objects or the word different' placed between two unlike objects. As training progressed the number of nonlingustic elements in a strings decreased until the string finally consisted only words. Patient's preference must be scanned to find both the content and reinforcer for training. For the first few trails response open to the patient was the correct one, gradually a choice was presented, but only after each of the devices had been effortlessly introduced.

The patient was presented with two objects either A - A or A - B and was trained to place with 'same' or 'different' between them resulting in the declarative type strings 'A same A' or 'A different B'. Then patient was given both words simultaneously and was required to choose between them Then the interrogative was introduced. Patient was given two objects (A ? A or A ? B) and was taught to answer by

substitution the appropriate predicate either 'same' or 'different'

Patient's training was carried out with small set of objects e.g. A was cup, B a spoon. As a transfer test random common objects that has never been used in training are presented to the subject for analysing and manipulating. Negation is taught next to the subject on same - different so that 'no-same' and 'no-different' were single words. The 'no' is detached form the predicates and given to the patient as an independent unit and the patient is required to insert the two words 'no' and 'same' or 'no' and 'different' in proper order.

The patient's lexicon can be increased by teaching them a few nouns, verbs and personal names each of these are taught by associating a symbol with an object, action or agent in the context of a simple social transaction. Verbs can be taught by association, comprehension and production are taught simultaneously.

This training method was effectively used with global aphasics. This method suggests that each global aphasic still has the ability to learn an artificial language. Using cut-out symbols which served as 'word' each with a referent, the global aphasics demonstrated the capacity to learn simple construction and the capacity for using symbols is not totally abolished in global aphasics (Glass, Gazzaniga, Premack, 1973).

9. Computer Assisted Visual Communication Program (C-Vic):-

Steele, Weinrich, Wertz, Klee Zewska, Carlson, 1989. Weinrich et al, 1989, have demonstrated that severe aphasic patients can manipulate the computer "mouse" and button click necessary for operation and can learn the rules of lexical organisation. C - Vic enables patients having no spontaneous speech or ability to read or write to use pictures and icons on computer screen to communicate their needs and ideas. The C-Vic system consists of upto 240 different icons that *are* grouped according to their semantic or syntactic function e.g. actors, actions, objects conjunctions patients *are* trained using a highly structured training protocol to learn the meanings of the icons as well as the rules of C-Vic "grammar". As part of their training, patients learn to construct and comprehend complex sentences in the C-Vic pictorical system. Not all severely aphasic patients, however have been able to grasp the lexical and syntactic rules of C-Vic and to use them independently to initiate communication.

C-Vic training consists of two primary phases (Baker and Nicholas). In phase I, patients learn the mechanics of C-Vic; they are trained to carry out commands presented in C-Vic by the clinician (comprehension) and to answer question and compose descriptions of simple acts by p>lacing icons into response slots on the computer screen (production); phase II focuses on using C-Vic for real life communicative acts, including expressing needs, making requests, and asking

question. The duration of C-Vic treatment is about 9 months. (Baker and Nicholas, 1994).

Linguistic **Methods** : -

Recent approaches to therapy have focused on linguistic aspects. Within the linguistic perview, deficits *art** identified at phonetic, phonemic, lexical and grammatical level and treated accordingly. The contribution of linguistics to therapy as seen by Lesser (1981) *an*

1 . To expect a one to one correspondence between discovery from linguistic examinations of aphasia and recommendations for therapy i.e., if linguistic investigations reveal that there is an order of difficulty of linguistic elements, then the therapists discovers the position in this rank order to which the patient has regressed and plans a therapy program which takes the patient gradually forward through items of progressively greater difficulty.

2. Accurate linguistic descriptions gives opportunity for feedback from therapeutic practice to linguistic theory.

Using this approach, therapy aims to helps a patient to move from a given state of functioning at one level of language to higher more elaborated state. A program of step-by-step activities *are* developed at each linguistic-level. Such structured therapy has a significant effect than general language stimulation. A number of linguistic

approaches have been developed and tried *out* in aphasia rehabilitation.

Lhermitte and Ducarne (1965) coined the term "pre language therapy". It consists of a series of empirically selected exercises which are presented with the aim of minimising the clinical manifestations of various neurological distrubances which *are* frequently associated with aphasia.

Pre Language Therapy : -

I. Therapy for Borca's **Aphasia:-**

Pre language therapy generally begins before language retaining. It is intended to prepare the patient to derive the maximum possible benefit from subsequent language retaining. Pre language therapy is primarily focused on the remediation of attentional disturbances, problems of spatial and temporal orientation, of memory, of of calculation, as well as on paretic and/or dyspraxic deficits which may constitute obstacles to the retaining of spoken or written language.

I. a) Therapy for Linguistic reduction in Broca's Aphasia* Management of the linguistic reduction in Broca's Aphasia is divided into two major stages, the first called demutizaticm and the second called spontaneous production.

Demutization :-

Therapy aims at the recovery of the most automatic uses of language, words, the recovery of emotional and practical language. Facilitating procedures like phonemic cues, contextual cues and the like paired with gestures, mime and prosodic exaggerations *are* effective.

Spontaneous Production :-

As the patient makes progress, the reliance on facilitating cues is quickly de-emphasized so as not to impede further progress and help patient to move towards the controlled repetition of spoken linguistic stimuli, that is towards the controlled repetition of spoken linguistic stimuli, that is towards repetition which is voluntary even if it is often defective in terms of articulatory production. The patient is said to be in the stage of spontaneous production when voluntary repetition is possible. Audio-visual methods used in the spontaneous production stage *are* supplemented by sessions devoted to the enrichment of available vocabulary and to the remediation of syntactical deficits.

I. b) **Therapy for phonetic** disturbance **in Broca's Aphasia**

1. Therapy for Impaired Articulation :-

The presence of sever apraxia in the post-onset period prevents the voluntary movements of articulatory structures. The patient, hence has to be given exercises requiring

imitation and then production on verbal commands, of the articulatory movements like elevation of tongue, lip protrusion, etc., once the patient can carry out these movements in a voluntary fashion, therapy aims at production of phonemes *and* phonemic sequences. Learning exercises are followed by drills and exercises to promote stabilization, generalization, and transfer to oral reading, conversation, etc.,

2. **Therapy** for Impaired **Prosody :-**

The patient may be given exercises centered on vocalic chaining. Transitions between words, stress and melodic line to attenuate those dysprosodic aspects which interfere with the modulation of speech and reduce the intelligibility of discourse. Exercises aimed at recovery of the intonational patterns of interrogatives, exclamations, negatives, etc., and exercises involving the repetition of emotional expressions or utterances in which different emotions are expressed mainly through variations in intonations can also be carried out.

I. c) **Therapy for Agrammatism in ----------**

Therapy includes exercises which aim at increasing the availability of the commonest morpho syntactic rules. The following principles enhances the effectiveness of therapy (Lecours et al 1965).

1. LeKidal elements (nouns, adjectives and verbs) are selected according to their frequency of usage in the language.

2. The questions asked during the early stages of therapy *are* formulated in such a manner that the syntactical structures of the correct response in predetermined.

3. Visual clues in the form of drawings and audio visual teaching methods are presented.

4. Exercises to ensure comprehension of the semantic meaning of common syntactical structures precede exercises involving the production of those structures. The hierarchy of production tasks include repetition and coping followed by oral evocation (ie exercise in which the aphasic must formulate a sentence using given lexical elements > followed by written evocation. Procedures used in comprehension exercises include pointing to pictures, in response to spoken commands and the matching of written sentences to thuir corresponding pictures.

5. The exercises are presented in order of increasing linguistic difficulty.

S. The exercises aimed at *recovery* of the syntactical convention (relationships between words and simple syntagms in the context of sentences) precede exercises aimed at recovery of the morphological convention (relationships between lexical monemes and morphological markers in the context of words) . Imperative and assertive forms precede negative, interrogative and other transformations.

7. Exercise in narration are carried out with the aim of increasing the transfer and generalization. Therapist gradually fades her assistance at these stages.

The therapy process consists of three successive stages!

1. **Teaching of thematically Unrelated Sentences :-**

This stage is intended to focus the patient's attention on structural aspects, ie on the syntactical features of the stimulus Utterances.

For Example

Therapist '- I want to buy a hat, so 1 go to the store and . . . . . what do I do?

Patient : I buy a hat.

In the beginning, the therapist may facilitate production by providing the pronoun (or firstword) of the target response. This type of exercise is preceded by repetition and oral reading exercises.

2. **Teaching thematically Related Sentence :-**

This intermediate stage focuses on the simultaneous control of semantic & Syntactic constraints, the patient must attend to both the syntactic structure of the target sentences and the messages conveyed. 1 he exercises include

production of simple affirmative declarative type of Utterances (SAD), Audio-visual cues *arts* used. Initially, the patient repeats the therapists utterances following which oral reading of the printed matter is carried out. Finally the therapist question the patient to elicit the target response.

For Example :-

Sequenced illustrations with the target sentence printed.

3. Expressive discourse: -

This final stages aims at the transfer of gains into narration. The patient is asked to narrate stories of increasing length and complexities. Initially, pictured stimuli is given followed by narration on suggested topic and well-known stories and gradually progressing to more personal narratives.

II. **Therapy for W**ernicke's Aphasia:-

a . **Therapy for Logorrhoea:**-

The goal here is to silence the patient and to focus his attention on various tasks which include mostly nonliguistic stimuli. The patient is required to use gestures rather than spoken production. Once this goal is achieved language retraining is began by using the following exercises; audio phonatory (repetition), Visuophonatory (oral

reading), audio graphic (writing to dictation) and visuographic (copying) using the least impaired modality which are then carefully and slowly carried over to dialogue situations.

b. **Therapy for Phonemic** Distrubances :-

Therapy for phonemic disturbances in Wernicke's aphasia requires the establisment of attending enviors and the patient's recognition of his impairment. The initial stages include minimizing the anticipation errors in oral reading, by using a covering card so that the stimuli *are* exposed syllable by syllable, and in repetition by presenting the stimuli in segments. Perseveration can be controlled by lengthening the interval between successive stimuli.

Since few errors *are* made on monosyllables, bisyllables, whose constituents share few common features *are* used. E.g. hammer, pillow, Later bisyllables having similar phonemes are used E.g. seashore, seaside, these are followed by consonant clusters and simple syntagms, Small and simple phrases precede complex sentences. Multisyllabic words are reserved for later stages of therapy.

The final stages includes concentration on the most affected mode ie repetition. If all the modes *are* affected, 'method of codes' described by deRibaucourt-Ducorne can be used which stresses on facilitating recovery by providing associations of sound 8. meaning to the patient's oral of or

written productions. For example. If the patient spontaneously said Kar (**car),** the therapist would immediately try, by associating, repetition, written word, gesture, rapid sketch etc., to elicit words such as Karban (carbon), Karpit (carpet), Pit, (pit), PItl (pity), etc., (Lhermitte et al., 1983).

c. **Therapy for** Paragrammatism **in Wernicke's Aphasia:-**

Paragrammatism or dyssyntaxia is characterized by the juxtaposition of lexical words. Therapy aims at providing correct examples of the syntactic structures of sentences, erroneously produced by the patient. The patient is asked to read the stimuli, to repeat them and to reproduce them from memory in speech and in writing. The most useful productions *are* obtained by asking the patient to tell a familiar story and to describe different pictures or scenes.

Therapy progresses with the patient having to join sentence fragments written on different cards and exercises requiring the selection of morphological markers with reference to other sentence constituents. An order of increasing linguistic complexity is followed. The materials used in the therapy exercises *are* similar to that used in the last stages of therapy for agrammation.

III. Therapy for Lexical Disturbances :-

A greater or lesser degree of word finding difficulty is seen in all 'true aphasias (C.Foxi, 1917). When lexical reduction is clearly evident, the stages of lexical therapy include.

1. Naming exercises to promote recovery of a basic vocabulary. The initial words are semartically diverse & have a high frequency of usage.

2. Refinements, included in the later stages of therapy, requires the patient to name not only each stimulus, but also its different components (e.g. first 'leaf' and then its 'stem' and 'veins') Lhermitte et al, 1983.

Low frequency words which are related in terms of conceptual association (e.g. table-book) are introduced at later stages. During the first stages of therapy, drawings and pictures are used which are supplemented with written words.

Once the patient reaches a stage where facilitating cues are not require, 'rotated naming' (Ombredane, 1951) exercises can be begun. Here the patient is asked to respond to a picture card. No cues are given nor is a time limit set. A second card is then presented for the naming task, correct naming is followed by presentation of the first and second card to verify the continued availability of the

appropriate response, A third is introduced later. This method was found to be useful in therapy for patients with amnesic aphasia.

In case of Broca's aphasia, the above steps can be carried put by giving phonemic cues. The following linguistically oriented exercises are carried out. These exercises are aimed towards the associated producation of words which are defined in relation to others by different types of semantic associations.

1. Antonyms :-

The patient's task is to find a word of opposite meaning to a stimulus word presented orally or in writing. The patient can select the antonym from a list of words spoken by the therapist or written on separate cards. Exercises should include production of morphological opposites (E.g. proper-improper) as well as lexical opposites (E.g. thick-thin).

2. Synonytms :-

The patient's task is to come out with words which are similar in meaning to the stimulus word presented orally or in writing.

3. Homonyms :-

The stimulus word presented has multiple meanings and the patient has to produce words which are related to the possible meanings of the stimulus word. The stimulus may be presented either orally or in written form.

4. Derived Words :-

The task of the patient is to supply some form of derivation of the stimulus word. For E.g. if the stimulus word is 'form' he has say its derivations like inform, reform, formal and so on.

5. Compound Words :-

The task of the patient is to form compound words when the first element of the compound word is uiven.

E.g.:- Daydream, day light, day time and so on.

6. Categories :-

The patient is given a stimulus word designation a categories of similar items and he/she has to retrieve the name of some category members.

E.g. Eatables - Vegetables, Fruits, Rice, bread and so on.

7. Paradigms :-

The stimulus provided here is an incomplete sentence with the lexical word missing.-------- task is to supply different words which will be appropriate to fill the gap in the sentence.

E.g. John reads_____in the library (books, magazines, newspapers, journals and so on).

8. Other Conceptual Associations:-

Other analogues exercises include naming parts of whole

(tree-roots, trunk, branches, leaves, fruit etc.,) retrieving words bearing some conceptual relation to the stimulus. (Winter 0 snow, cold, skiing etc.,))Lhermitte et al, 1983).

9. Semantic analysis and synthesis :-

The synthesis task includes naming the word when it is defined or its features are described.
E.g. ('part of a car which controls its direction'- steering wheel).

The analysis exercise includes the presentation of a single word and the patient has to either define or describe the features of the word.
E.g. 'Apple' - Fruit, Edible, Red Color and so on.

Language Oriented Treatment (LOT) :-

Language Oriented Treatment, as described by Shewan (1978) uses an operant paradigm; while the content is based on the knowledge about language impairment in aphasics the purpose is to teach strategies rather than responses. LOT has its roots in a particular view about aphasia that maintains that the language system itself is impaired or disturbed as well as that access to it potentially is disturbed. Therefore, aphasia does not represent simply a loss of language or impaired access to an otherwise normal language, rather, aspects of the system, phonological semantic, syntactic, or any combination of these, are

impaired. Evidence to support this view corner from many sources, some of the most potent being Zurif and his colleagues work with agrammatic aphasics who were impaired not only in their ability to produce or construct grammatical sentences but also in their underlying knowledge about basic grammatical relationship (Zurif and caramazza, 1976). This suggests an impairment in the syntactic system itself.

Data have also demonstrated that aphasie patients semantic knowledge appears to be disrupted. The scope of their semantic categories did not coincide with normal subjects semantic category boundaries and they did not make the same distinctions among semantic features as did normal adults modalities.

The frequently reduced scores and the increased latency of various types of responses in aphasia patients demonstrate their reduced efficiency in processing language. One of the goals of LOT is to increase the patients efficiency of processing language, both receptively an expressively. In addition to impairment of language system, aphasia also involves a disturbance to processing mechanisms for understanding and producing language, one of the ways of circum venting processing problems is by teaching aphasic patients to employ a different strategy bo approach a problem or to use a cueing system to aid processing (Whitney, 1975; Shewan 1976). LOT views the language content of treatment as important. Treatment is more than providing indiscriminant stimulation. Because language is not lost,

the goal is not strictly retraining or reduction, however, the language system is impaired and the content of treatment is directed towards those impaired modalities and at level that are appropriate to the degree of impairment.

LOTs goals are to facilitate improved efficiency, reorganization, and/or the establishment of function in homologous brain areas so that language processing operates at its best possible level. For severely impaired patients, an alternate system or augmentative system to oral language may be required.

The content of LOT is specified by dividing the communication system into five modalities. These served as the major content divisions of LOT.

a. Auditory processing.
b. Visual processing.
c. Gestural and combined gestural-verbal communication.
d. Oral expression.
e. Graphic expression.

Each of the five modalities is divided into areas, one or more of which may be appropriate to include in training. The areas specify in greater detail content aspect of LOT within each modality.

1. Auditory Processing (A.P):-

Areas :-

1. Awareness of auditory stimuli (AAS).
2. Recognition of auditory stimuli (RAS).
3. Monitoring speech (MOS).
4. Comprehension of Single units (CSU).
5. Comprehension of short series (CSS).
6. Comprehension of meaningful linguistic units (CMU).
7. Comprehension of sentences (CSE).
8. Comprehension of paragraphs (CPA).
9. Comprehension of narratives and discourse (CND).

II. Visual Processing (V.P.):-

Areas :-

1. Matching non verbal material (MNM)
2. Matching verbal material (MVM)
3. Visual correspondence/recognition (VOC)
4. Reception of gestured messages (RGM)
5. Recognition of spelling (RSP)
6. Reading comprehension (RCO)
7. Reading textual material (RTM)

III. Gestural and Gestural 0 verbal Communication. (G-GV) :-

Areas :-

1. Attention (ATT)
2. Acknowledgment of listener message.
3. Gestural communication (GCO)
4. Simple speech acts (SSA)
5. Speech acts (SSA)

IV. Oral Expression (OE) :-

Areas :-

1. Automatic speech series (ASS)
2. Phonological - articulatory production (PAP)
3. Repetition (REP)
4. Oral reading (ORE)
5. Oral spelling (OSP)
6. Word retrieval (NAM)
7. Oral formulation (0F0)
8. Conversation (CON)
9. Discourse (DSC)

V. Graphic Expression (G.E.) -

Areas :-

1. Tracing and/copying nonverbal material (TCN)
2. Tracing and/or copying verbal material (TVC)
3. Writing familiar material (WFM)
4. Written spelling (WSD)
5. Written naming (WNA)
6. Written formulation (WFO)
7. Writing complex material (WCM)

In LOT, the learning of specific stimulus response bonds is not the goal. Here, the stimulus is presented, the client makes a response, and the clinician provides feedback. In LOT the same stimuli are not used over and over again until the client learns then to criterion of so to 90% correct, rather different stimuli at a comparable. Level of of processing difficulty are presented to elicit responses.

Knowledge of results is provided so the clinician and client know how well the client is able to process at this level and, consequently, when to proceed to the next level of difficulty.

This processing provides practice and reorganizational opportunities so that the neurophysiological mechanism can improve or appropriately alter its functioning. This may happen by increasing effectively, developing alternate pathways or net works, or repairing impaired pathways.

Linguistic Profile Therapy (LPT) :-

The rationale of LPT is "Rehabilitative programme based on individual aphasics linguistic profile are on concrecte grounds affording both measurable precision and direction at every stage in therapy. They are considerably more tailor made than traditional approaches to language therapy for aphasics" (Karanth, 1986).

LPT is more comprehensive than the traditional method of the therapy taking into account both the modality bound deficits and those of linguistic complexities. Therapy is based on the patients linguistic profile as obtained in the linguistic profile Test. It offers the therapists a concrete base, therapeutic direction and measurable precision in terms of therapeutic progress. That section of the test in which the patients performance is the poorest is taken up for therapy. The rationale underlying this choice is that all the three linguistic level in phonology, semantics and

syntax, are intervened and cannot be seperated in the normal use of language, therefore, it is not expected that aphasics will show clear cut deficits in any one level. The level at which the greatest deficit is seen is taken up for therapy on the premise so that it is there in that the Aphasic's greatest difficulty lies and improvements at the level would not only improve his deficit at that level but also in his overall communication.

All the aphasics, irrespective of the type of aphasic, the severity and time postonset (with the exception of severe global aphasics), are amenable to therapy. LPT is easily amenable for home training programs.

The Various Levels are:-

I. Phonology :-

a. Phonemic Discrimination.

b. Phonetic Expression.

c. Running Speech.

II. Syntax :-

a. Morphophonemie structures.

b. Plural forms

c. Tenses

d. PNG MArkers

e. Case Markers

f. Transitives, intransitives and causatives

g. Sentence types

h. Predicates

i. Conjunctions, comparatives and quot----

j. Conditional Clauses

k. Participial constructions

III. Semantics :-

a. Semantic discrimination

b. Semantic expression

01. Naming

02. Lexical Category

03. Synonymy

04. Antonymy

05. Homonymy

06. Polar questions

07. Semantic anomaly

08. Paradigmatic relations

09. Syntagmatic relations

10. Semantic contiguity

11. Semantic similarity

IV. Discourse

APHASIA REHABILITATION IN INDIA

Rehabilitation of the Aphasics in India is restricted mainly to specialized medical centres and to a lesser extent to private clinicians in their clinics. Most of the medical centres and clinics are restricted to urban areas. Moreover, there are very few trained specialists and these few prefer

to work in metropolitan cities. Hence, there is very limited understanding of aphasia not only by lavman but also by speech pathologists. The slow long term nature of aphasia rehabilitation programs present many problems for the aphasics in India. Not all the centers and clinics offer free services in India and even if services are offered free of charge, there are other nature of problems an aphasic and his family has to encounter.

In a country like India, people have to depend upon public transportation for attending therapy at specialized centres. The distance, time and money spend and the effort taken to reach the centres, along with the long term nature of rehabilitation with its slow progress made in therapy, discourages the aphasic and his family from attending therapy leading to a high drop out rate.

In India, there is a very limited awareness of aphasia and there are no welfare schemes or organisations who have as their main objective the rehabilitation of aphasia. There are, however many welfare schemes provided by the government of India to other disabilities like hearing loss, visual problems, mental retardation and physical disabilities. The problem of aphasia is not given much attention.

Due to lack of adequate beds in hospitals, aphasic patients are discharged as soon as their neurological condition stabilises. This makes it necessary for the aphasic to travel regularly from their homes to centres for

follow up. In case of aphasics who present with motor problems like hemiplegia. travelling becomes difficult. Very few facilities are provided to patients an wheel chairs in India. This Makes it tedious for the aphasics tc travel regularly. Hence it is not surprising to find a high rate of drop outs from therapy in India. There is only a very small number of highly Motivated aphasic with a supportive family who benefit from long term rehanbilitation program.

Under these conditions, it becomes necessary to think about alternative techniq.es which can facilitate the patient without placing too much constraints on him. Considering the problems faced by aphasics in India, home training programs based on Linguistic Profile Therapy '----- „ 1988- have been tried out. It has been found that western methods like MIT for expressive aphasia, do not work well with India patients due to cultural factors. Hence, an attempt is made to develop a Home Training Kit for the Indian aphasic. This kit is mainly for the clinician who after a thorough assessment of the patient, will introduce the program in stages and will monitor it regularly. This kit is not meant to be given directly to the patient, but will be used under the supervision of the clinician.

A Home training program has been developed keeping in mind those aphasics who cannot avail the facilities of regular therapy at rehabilitation centres. Since most of the rehabilitation centres, in India, are in the metropolitan cities, it becomes difficult for aphasics residing in distant places to get the benefit of therapy. Hence a home training program is developed, which includes therapy techniques and activities which can be easily carried out by the family memebers of aphasics.

Aphasia therapies can broadly be classified as general techniques and specific techniques. The general techniques are the traditional stimulation approaches which are broad based. It does not consider the specific deficit of the individual aphasic and these techniques are used irrespective of the subtypes of aphasia. The specific approaches, on the other hand, are used with specific subtypes of aphasia, like melodic intonation therapy for Broca's Aphasia; Visual Action therapy for global aphasic; and so on. Specific techniques, however require the serrvices of a professionally trained individual.

Hence, the hometraining program has been developed for different degrees of aphasia rather than the subtypes. However, illustrations and examples are------ with respect to the major subtypes. Thus, this program can be used for all types of aphasias. This program is given in Hindi because

it is the language commonly spoken all over India. It can, however, be easily adapted into other languages depending on the languages the aphasics speak.

Therapy program for the following degrees of aphasia have been given.

1. Mild aphasias and Naming difficulties.
2. Mild to moderate aphasias.
3. Moderate to severe aphasias.
4. Severe aphasias.

The therapy techniques described for the different degree of aphasia do not require a qualified professional. Instead the techniques and activities chosen are such that no specific training is required to give therapy. Since this home training program is for the family to carryout at home, only those techniques which are simple, easy to follow and administer, requiring very little knowledge of the complexities of specific techniques are used.

The follwing therapy techniques have been discussed for the various degrees of aphasia.

1. Communication boards for the initial stages of treatment of severe aphasia.

Severe aphasics are unable to use any form of natural language and alternative communication systems have been used with the severely aphasic patient to provide a means of very

basic functional communication. since communication boards are easy to construct and use; inexpensive and can be easily made at home; their use has been described with specific reference to the rehabilitation of severe apahsic.

2. Language Oriented Treatment for the moderate to severe aphasics.

The Language Oriented Treatment (LOT) is a modality based approach. It is observed that aspects of the language system such as comprehension, production, repetition, reading and writing are impaired in aphasia.

The content of LOT is directed towards. the impaired modalities and at levels that are appropriate to the degree of impairment. Moreover, the activities included do not require any specific training. They are based on layman's knowledge of language.

3. Linguistic profile therapy for the mild to moderate aphasias.

The mild to moderate aphasics have certain amount of language. They have difficulties only in syntax, semantics and discourse. The activities included in the LPT are such that it includes the specifics of language without focusing on the very basic skills. It is assumed that the improvement at one level not only improves the deficit at the level but also in the aphasics overall communication.

4. Deblocking for the mild aphasias and naming difficulties.

The mild aphasics present with naming difficulties only and deblocking technique facilitates naming. It is based on the rationale that by stimulating the central processes of languages by any or all modalities, at least one, especially verbal expression would be facilitated. Deblocking, infact, can be used in all types and degrees of aphasia.

Though the home training program is for the family of the aphasic, it is not meant to be given to the family directly. The Home training kit is for the therapist who thoroughly evaluates the aphasic using any of the standardized aphasia tests like the Western Aphasic Battery (Kertesz and Pools, 1974); Boston Diagnostic Aphasia Examination (Goodglass and Kaplan, 1972) and Linguistic profile Test (Karanth, 1980). Based on the scores obtained the therapist rates the patient as mild, moderate or severe aphasia and selects the appropriate therapy program. Once a therapy program is selected, a hierarchy of items from simple to difficult has to be made within each section of the program. The family is given guidelines on how to carry it out at home. The family is given the program in writing with examples for each activity, so that additional activities and materials can be developed by the family depending on the aphasics need to communicate. Further levels of difficulties are introduced as the patient makes progress. Thus the program has to be introduced in stages and has to be monitored regularly. This requires the family and the aphasic to visit the rehabilitation centres once in forthright.

HOME TRAINING KIT

HOME TRAINING KIT

The Home training kit contains information onthe following:

1. The family and the aphasic and family counselling.
2. Communication boards for the initial stages of rehabilitation of the severe aphasics.
3. Language Oriented Treatment for the moderate to severe aphasics.
4. Linguistic profile therapy for the mild to moderate aphasics.
5. Deblocking for the mild aphasics and naming difficulties.
6. Conclusion.

THE FAMILY AND THE APHASIC

The importance of the place of the family on the aphasia rehabilitation team cannot be overemphasized. Of all known illnesses, aphasia is probably the one whtch affects the family most directly. Turnblom and Myers (1952) stressed the importance of the family in "setting the atmosphere and determining the motivation for rehabilitation". Wepman (1951) pointed out that most often the major responsibility of aphasia rehabilitation rested upon the family and friends. Biorn-Hansen (1957) found that the nature of the relationship between the person with aphasia and his family exerted a considerable influence on

the patient's progress. The family plays a key role through out the course of the illness; from the initial suspension of communication to eventual rehabilitation and recovery. Buck (1968) justifiably qualified aphasia "The family illness".

The Impact of Aphasia on the Family :-

The abrupt, unexpected loss of the ability to communicate affects all aspects of the lives of the persons and their family. The family's reaction to the illness may be either extreme or moderate, supportive of destructive eventually leading to a disruption in the equilibrium. Few of the reactions and attitudes of family members are given below.

1. Role Change :-

One of the most frequently reported problems is that of change in the roles. The spouse is suddenly faced with responsibilities and duties that formerly belonged to the partner. This change is especially traumatic if the patient is the sole support of the family. The healthy spouse not only becomes the sole breadwinner, but also must raise that children, attend to management and upkeep of the house, make major, decisions on financial matters and have the 'last word' on most subjects.

Reactions to the role reversals are variable. Some may fear or resent the new responsibilities, while some may panic and feel crushed by the multitude of responsibilities

that were formerly shared, some may discover previously untapped potential and enjoy their new authority which they may find satisfying, even rewarding. Either reaction can create an obstacle to recovery for the patient. Some of the spouses have reported that due to the change in roles, the family as a closely knit unit no longer existed with neither of them enjoying the same things nor discussing their problems with one another.

2. Irritability :-

Irritability is an especially disturbing characteristic when it creates, as it frequently does, guilt feelings.

3. Guilt :-

Turnblom and Myers (1952) reported that guilt was manifested by the family in different, ways:- a feeling

a. that they were responsible for the- patient's problems.
b. that the aphasia was a punishment for wrong done, or
c. that they were not doing all they should be doing for their relative.

Some link the stroke to a stressful event, an argument or to overwork in the days prior to the attack. Some spouses blame themselves for their inability to foresee the stroke and even accuse themselves of negligence, for not preventing it.

4. Altered Social Life :-

Social activities and recreation decrease in importance for all couples where one of the members has aphasia. A large proportion of couples complain of the social estrangment imposed by aphasia. Friends gradually stopped coming to visit according to family members. Many of the families admitted, however, that it was they and nob their friends who were responsible for the estrangment. Spouses of persons with aphasia, drowning in a multitude of tasks, have little time to devote to external contact. They rarely entertain friend, many admit that they avoid discussing the spouse's disability with their friends; they also tire of constantly repeating the same explanations to each new listener. Many of the families are ashamed and embarrassed by the conduct of their relative with aphasia and have dicouraged visits by their friends and relatives.

5. Financial Problems :-

The many problems which the family of the person with aphasia must face are aggravated by financial complications. Not only are expenses sharply increased h"t. in many instances income is suddenly reduced.

6. Unrealistic Attitudes :-

Malone (1969) and kinsella and Duffy (1978) reported that many spouses manifest unrealistic attitudes about the patient's future. Spouses of persons with aphasia tend to believe that improvement will take place and that the person

will eventually recover the ability to speak. Most spouses believe that the difficulties will dissipate over time, and that the person will resume former activities within a year or two at most.

7. Over Protection :-

Feelings of guilt often go hand in hand with over protection. Some spouses make every effort to avoid situations which may be stressful for the person with aphasia while others perform tasks that the person is quite capable of executing. Patients every movement including sleep, intake of medicine and food, and movement inside and outside the house are monitored and the patient is never left unattended at home. As a result, persons with aphasia become increasingly dependent and demanding on their spouses.

8. Over Solicitousness and Rejection :-

Family attitudes of over solicitousness or rejection may stem from what Turnblom and Myers (1952) referred to as a feeling of "anxiety and uncertainty" by the families " in the family-patient relationship". There was evidence that the family members, not quite certain how to act or react to their relative with aphasia, either gave excessive attention to the patient or pretended that there was no change, attempting to ignore or avoid the very real problems which had to be met. In many cases, over-protection disguises feelings of rejection the rejection is not overtly expressed, but it is implicit in statements such as "I consider my partner more of a child than a spouse".

9 Job Neglect :-

Because of time and thought devoted to their spouses after they become aphasic, the partners report that they have neglected their jobs.

10. Marital Relations :-

The loss of the ability to speak has a particular effect on the relationship between spouses. The couples are no longer able to communicate subtly their feelings and impressions. They experience problems with interpersonal communication and friction soon escalates. Alterations in their marital relations were reported by all spouses of persons with aphasia studied by Linebaugh and young Charles (1978).

11. Health Problems :-

Mental as well as physical health of spouses and close relatives of aphasic may be impaired. One of the common reason for this is disturbed sleep. A commonly heard spouse's complaint; "I can't sleep, his slightest movement wakes me up!".

12. Effects on Children :-

Children in the family of a person with aphasia present a special problem. Because of their youth, the problems can have more far reaching effects on children. One of the common complaints of children of aphasic patients is that parents do not have time for them.

FAMILY COUNSELLING

From the beginning of the recovery period through rehabilitation and discharge, the family performs an important role in the success of the rehabilitation program. Very few speech pathologists recognize that the attitude of family influence the effects of therapy. Hence counselling the aphasic's family should be considered as a part of the rehabilitation program. The speech pathologists, if need arises, can also consult the medical and other rehabilitative staff to help them in counselling the family.

The family of the aphasic should be counselled on the following points :

1. Provide the family with information regarding the nature of aphasia and its impairments.
2. Prepare the family for rehabilitation.
3. Help the family communicate effectively with the aphasic patients; and
4. Help the family adjust to the return of the aphasic person to the community.

1. Information Giving :-

Most families have no prior experience with persons with aphasia and are in need of adequate and reliable information on the nature of aphasia and its associated problems. It is essential to familiarize the family with aphasia in order to better understand and accept the person

with aphasia. Providing information regarding the nature and effects of brain damage is the first and most important topic in counselling. It is the duty of the speech pathologist to explain to the family the nature of aphasia, its neurological origin, its many manifestations, and the specific symptoms of each type of aphasia. Family usually wants to know the prognosis, the factors influencing recovery, the duration of treatment, and the particular behavior of the person with aphasia. The clinician should inform them of the objectives of treatment and the methodology being employed. Direct discussions with the family can be supplemented with written materials to read at home.

2. Preparing the Family for Rehabilitation :-

The therapist should devote some time in preparing the family for rehabilitation. The clinician should create an atmosphere where the relationship of the clinician with the family is open and there is a willingness to exchange information. The goal of counselling should be self-understanding on the part of the family. The family may be encouraged to disclose their feelings about their problems during the process of therapeutic communication. The clinician can help the family identify the problems through restating, simplifying, re-formulating their ideas, asking questions to clarify and extend ideas, presenting the family with facts about the situation, and reinforcing the family for insightful communication. Carl Rogers (1961) stated that there are three essential qualities required in the process

of therapeutic relationship - genuiness on the part of th& clinician, unconditional positive regard for the patient, and empathic understanding of the patient's problems.

3. Helping Family Communicate Effectively with the Aphasic :-

The family members should be told about the communicative strategies which will help them communicate more effectively with the aphasic patient. Some of the communication strategies are listed below:

-- Face the aphasic patient when speaking with him.

— Encourage the aphasic patient to talk or communicate through any means about his needs.

-- Speak slowly and clearly to the aphasic patient.

Talk about topics - objects and people in the immediate environment.

Do not shift from one topic to other. Keep the topics related.

Use short, syntactically complete utterances.

Pause between ulterances to help the patient comprehend the message.

Repeat important ideas several ways. Use synoyms and descriptions.

Use nonverbal cues along with spoken communication to facilitate comprehension.

— Ask questions which require simple, short responses or ones which can be communicated nonverbally.

Encourage the aphasic to use nonverbal cues to supplement his verbal attempts.

Encourage other patients (in hospital) to talk with the aphasic patient.

Give the patient time to find words.

The therapist can demonstrate a few of the strategies like demonstrating how to slow down their speech, pausing between words and sentences and so on. The therapist should arrange for a few demonstration sessions for the family members to observe the therapy so that accurate practice is carried out at home. Family members should be allowed to participate in the session and they should be encouraged to develop their own strategies. Family participation should be encouraged at every stage of rehabilitation.

4. Helping the Family Adjust to the Return of Aphasic to the Community

The family has to be counselled on the modifications that will occur in family routine ike reinstatement of family roles, home training and so on. These topics can be handled better in a group situation with other families of aphasic individuals. Groups family counselling is not only time saving but it gives the family a chance to share problems and frustrations with other families who also have similar difficulties. During the process of sharing their problems, they get to know each other strategies of coping with the aphasic patients.

COMMUNICATION BOARDS FOR THE INITIAL STAGES OF RECOVERY OF SEVERE APHASICS

The severely aphasic patient who have lost completely all aspects of his functional language, and for whom the chances of recovery are quite slim requires alternative communication systems to provide a means of vary basic functional communication. For other aphasic patients who are functioning at higher levels, the employment of these systems helps in the recovery of higher linguistic abilities.

Aphasia is a language disturbance and it is not surprising that therapists focus on retaining of linguistic skills by emphasizing on vocabulary retrieval of words and object names. Very minimal attention is given to the use of alternative systems with aphasics. Some of alternate communication system used in the rehabilitation of aphasics are communication boards; mechanical communication devices; nonspeech symbolic systems; finger spelling; pantomime and gesture; sign language; intersystemic reorganization; and biofeed back.

The use of the communication boards will be discussed in the rehabilitation of severe aphasics. These boards are easy to construct, they are inexpensive and can be used very easily at home.

Communicat-ian hoards are a non oral method of instruction which can serve as a communication system for the aphasic individual in which the symbols are reproduced on a display and in which messages are transmitted by the user indicating in the appropriate sequence the symbols on the board that encode them. Communication boards not only help the aphasic in a two-way communication but also facilitates the development of vocabulary, syntactic rules and concepts needed to think and express himself effectively.

Before proceeding to the use of communication boards, the therapist must evaluate the aphasics' linguistic skills, intellectual capacity and general status. This helps the therapist in determining the level at which the aphasic is functioning and what type of a board can be constructed for him. For the severe aphasic, who has lost ail basic skills of language, picture boards are effective. For the aphasic with relatively good auditory comprehension and poor expression (i.e., mild or moderate aphasics) sentence construction board may be useful.

The contents of the board, be it pictures, words or sentences, must be within the intellectual capacity of the aphasic. The boards should be constructed such that it meets the aphasics needs in different communication situations.

The severe aphasics present with motor problems. They may be nonambulatory requiring the board to be mounted on the wheel chair. Visual problems due to age should be taken into consideration and certain modifications like bigger pictures, bigger prints, spacing between words and so on need to be made.

Ability to indicate a picture or word by pointing or signaling (either manually or by indicating with eyes) is essential to communication board use. Unambiguous pointing or signaling is important for effective communication.

Communication boards consist of one or more sheets of some type of material on which the elements of a symbol system are reproduced. The materials used can be paper, cardboard, cloth, plywood or plastic. A symbol is a set of sensory images, or signs that suggests for something else by reason of relationship (association) or convention.

The various symbol system which can be used on the communication board are :

1. Printed English or Another Language :-

This is the most flexible and efficient symbol system. It can transmit any message which the user can spell and that those with whom he is communicating can read.

2. Photographs, Drawings or a Combination of the Two :-

It is a concrete and easy system for most people to learn as well as to understand. This system is useful for communicating basic needs in hospital as well as at home and during the initial stages of therapy.

3. Bliss Symbolics :-

Some language boards use specialised symbols or graphic system to represent concepts. These symbols are the bliss symbols. Bliss symbolics is a pictographic, ideographic writing system for persons who are unable to read or spell English words well enough to encode the messages they wish to transmit. The alphabet consists of 100 basic symbols, 30 of which are internationally recognized (Arabic Numerals, mathematical signs, punctuation, directional indicators, etc.,). These symbols can be used either singly or in combination. New concepts are formed by blending two or more symbols.

Most bliss symbols encode information on a semantic level while a few encode grammatical information. Each symbol element represents a general idea, of concept. The general idea, or concepts, usually includes a set of related ideas, or concepts that would be encoded in English (or another language) by more than one word. For example, the symbol for water with the addition of other elements can mean rain, steam, snow, cloud, lake, ocean, freezing, hail river or current.

It is important to note that, a word always appears under the symbol.

Bliss symbols have an advantage over the picture in that, it increases the generalisation of the aphasic's limited symbol set and allows him to say more things with the few symbols he might acquire. An advantage of bliss symbols over signing and gestural system is that the word is always written beneath every symbol. Hence the system is not a closed system because anyone can communicate with the aphasic even if the person has no knowledge of the bliss symbols.

Bliss symbols can be used to convey messages about the "here and now" as well as the past and the future. It can encode both abstract and concrete concepts.

The basic symbols such as yes, no, hello, goodbye, eat and drink, should be introduced first since the individual is already familiar with this. This encourages the individual to use the symbols meaningfully to communicate.

The Stages of Teaching the Symbols

1. Introduction of the symbols to the aphasic.
2. Modeling a pointing response to the symbol and verbalizing the meaning of the symbol.
3. Prompting of a pointing response.
4. Use of symbols for communication.
5. Drills and practice to make the patient more fluent in the manipulation of these picture symbols.

Symbol identification and comprehension followed by effective use of symbols for spontaneous communication should be the objectives of the training program.

Bliss symbols appear to be less complex to learn than words. Bliss symbols have been found to be effective in aiding respondent and spontaneous expression in nonvocal motorically impaired, cerebral pleased and MR. Since aphasics exhibit a similar kind of nonvocal behavior, bliss symbolics can be used with aphasics as well.

4. Photographs & Drawings, Bliss Symbolics & Printed Words can be Used Sequentially :-

Photographs and drawing can be used first and gradually bliss symbolics can be introduced to increase the number of

messages the person could encode. As the patients knowledge of bliss symbolics increases, bliss symbols can be substituted for pictures and photographs, as the patient's ability to read printed words increases, it can be substituted for bliss symbols.

Some of the factors to be considered while designing a communication board:

1 Construction Material :-

The materials used are paper, Cardboard, cloth, plywood or plastic. The type of material chosen depending on a number of factors.

Size of the board, the larger board, the more sturdy the material needed.

The length of time it is intended to be used. The longer a board is intended to be used, the more durable the material needed.

If the board is to be more portable the material used should be lighter in weight.

— A plastic contact paper can be used to cover the material to prevent it from soiling.

-- A board which is to be used horizontally does not required a very sturdy material as a board which will be used at an angle.

2. Size :-

The size of the material again depend upon a number of factors.

The number of the elements of the symbols that will be used. The greater the number of elements, the larger the size of the board.

The size of the elements of the symbols that will be used. The larger the size of the elements, the larger the size of the board.

— The method used to indicate symbol elements. If the aphasic patient uses eye pointing rather than finger pointing, the elements should be seperated out so that it is easier for the observer to understand the gesture. In such a case, a larger board would be needed for a given number of elements.

— Where the board has to be mounted. If the board has to be mounted on the wheel chair. It places restrictions on its minimum and maximum size.

If more number of sheets of materials are used, the size of each sheet can be limited.

3. Method of Reproducing Symbol Elements on the Board :-

The elements can be reproduced on pieces of a material (usually paper or card paper) which can be attached on the board with the help of pins. The symbol elements can also be directly reproduced on the board. The former, however, is used when a few elements are to be introduced at a time or when the elements have to be updated periodically as the aphasic makes progress.

The symbol systems can be printed and drawn with felt-tip markers. Different color inks can be used to indicate a category to which each belongs (e.g. nouns, red; verbs, blue, etc.,). If letters of alphabets are reproduced either singly or in combination, they can be done so by typing the letters or writing them in bold face.

Photographs can also be reproduced on board to help the aphasic identify and name the family members.

4. Method of Mounting the Board :-

The board should always be mounted horizontally so that the persons with whom he is communicating can see his indications. If eye pointing is used to indicate, the board, will have to be mounted vertically. Whatever the position of the board it should be visible to the user and should be compatible with his or motoric ability to indicate message components on it. The common placements are either on a table or on the lap. If the board is used in a vertical position, appropriate stand or support will be needed to position it at a particular angle.

5. Board Surface (Covering) :-

The board can be covered using a plastic sheet to prevent it from getting soiled.

Individualization of content on communication boards.

Each board should be made for a specific aphasic, taking into account his linguistic, physical and intellectual abilities as well as the communication needs.

While the content and format of the communication board must be designed for each individual there are certain commonalities like use of symbols to express feelings (happy, angry, etc); social greeting 'How are you'?, 'good morning', please, thank you. Symbols to express 'Yes' and 'No' are the basic symbols to be used with all aphasics.

INDIVIDUALIZING BOARDS FOR PHYSICAL PROBLEMS :-

For an aphasic presenting with hemiplegia, the symbol elements should be reproduced on the "better side or the "good" side to facilitate effective communication. If we put the material on the other side it may be stressful for the patient.

Three basic approaches for providing a means of indication.

There are three types of strategies that can be used for indicating message components on a communication board : 5canning, Encoding and Direct Selection (Vanderheiden, 1976).

1. Scanning :-

Scanning is the simplest of all three strategies. It is a technique in which the selections are offered to the user by a person or display, and where the user selects the characters by responding to the person or display. It is a teachique in which the items in the aphasic's vocabularly are presented to him one at a time so that he can let us know when the item he wants is presented.

The simplest example of a scanning technique is the Yes/No guessing technique. A person simply presents choices to the aphasic such as, "you are thirsty?", "Does something hurt you", "Do you have to go to the bathroom?" etc., and when the desired message is presented, the aphasic signals "Yes" in some manner, such as smiling, nodding, etc.

A communication board which can be used for a scanning response mode is a rectangular, row-column matrix board. Each cell contains a message component - a letter of the alphabet, a digit, a mark of punctuation or a few words. The person communicating with the aphasic has to poinb to the individual cells in a matrix one after another and ask for each whether it contains the message. --------ent he or she wishes to transmit, continuing until a 'Yes' reponse is obtained. This, though, effective is time consuming.

The two-step scanning is a hit complex but efficient technique. Here the board is divided into segments, each

containing a number of cells. A segment, for example, may be a row of cells. The person being communicated to would point to each of the segments and ask for each of the segments and ask for each whether it contains the message component until a 'Yes' response is obtained. Once a 'Yes' is obtained he then proceeds to the cells in the segment one after the other and asks for each whether it contains the message component until a second 'Yes' response is received. This process can be repeated for each symbol element in a message.

For an aphasic to use this technique he or she must be sufficiently intact:

1. Visually, to identify the message components in the board,

2. Conceptually, to understand their meanings, &

3. Auditority, to understand the questions asked.

Though it is a simple Yes-No response technique, it is often time consuming.

2. Encoding :-

Encoding can be defined as a technique is which the desired choice is indicated by a pattern or code of signals, where the pattern or code must be memorized or referred to on a chart (Vander heiden, 1976) some of the types of encoding schemes are

a. A chart containing series of printed messages a person might want to transmit (for e.g. "I am hungry") that are numbered consequtively.

b. A communication board in which each cell contains one of the numbers that appears on the chart (the number of cell s being equal to the number of messages on the chart. A one step of a two step scanning mode could be used to signal the number of messages the person wishes to transmit. Here, only a single scan of the board is necessary to transmit a message. However, only limited number of predetermined messages can be transmitted using it.

A more complex encoding strategy involves transmission of the message in any cell on the board by means of two digits. The first would indicate the row number of the cell containing the component and the second the number of the column in which it appears. For e.g. if there are sixty-four cells on the communication board (i.e eight rows and eight columns), the encoding device only has to display the digits from 1 to 8.

The encoding technique is generally faster if the individual has some form of quick motion, or if the individual is able to point directly to a moderate number of different squares. For an aphasic whose movements are slow and erratic, the encoding approach may be even slower than scanning.

This appraaeh requires mare responses and thus more work from the aphasic. This depends on the physical abilities and how quickly he fatigues. The encoding technique is more abstract than the scanning approach where the choices are more directly presented to the aphasia.

3. Direct Selection :-

This is the more straight forward and common of the three techniques. It is defined as any technique in which the desired choice is directly indicated by the user. (Vanderheiden, Harris-Vander-heiden, 1976).

The simplest example of direct selection is direct gesture. If the aphasic wants to go out, he looks or points at the door. On the communication board, the aphasic directly indicates with his hand the letters, words, pictures etc., which he wants to use to make up his message, Since each gestural response indicates a message component, this mode requires fewer movements (but better controlled movements) to encode a message than do scanning or encoding, thus, it transmits messages faster and with less fatigue than either of the other response modes.

The different type of gestures which can be used are:

1. Hand (or finger gestures)
2. Eye gestures (directed gaze), &
3. Hand gestures.

While recommending a communication board for the aphasic, the therapist should given written information about the communication board, and instructions to use it, to family members.

Communication boards must be dynamic, content must be changed as the language develops. The boards may require changing every few days as the aphasics language development progresses and as his needs to communicate expands.

LANGUAGE ORIENTED TREATMENT FOR MODERATE TO SEVERE APHASICS

Language Oriented Therapy views aphasia as an impairment in language system and the access to it, rather than a loss of language. Aspects of the system, phonological, semantic, syntactic, or any combination of these, are impaired.

LOT's goals are to facilitate improved efficiency, re-organization, and/or the establishment of function in homologous brain areas so that language processing operates at its best possible level (Shewan, 1978).

The content of LOT is divided into five modalities.

1. Auditory processing,
2. Visual processing,
3. Gestural and combined gestural-verbal communication,
4. Oral expression,
5. Graphic expression.

The language content of LOT is very important. The materials and tasks presented to the patient determine the patient's progress. Training in the deficit language areas and training with language content at an appropriate difficulty level are important. This makes it necessary for the therapist to carry out a detailed evaluation of the patients linguistic abilities.

The five language modalities of LOT are mutually exclusive and nonoverlaping. The activities used should emphasize that modalities being trainded and make minimal demands from any other modality.

Each of the five modalities is divided into areas, one or more of which may be appropriate to be included in training. These areas are mutually exclusive, but collectively encompass the entire modality. In the treatment for each modality, detailed material for each area has been included. The items in each area are organized into hierarchies, with the easiest material listed first. Treatment materials and activities for several levels of difficulty for each area for each modality are provided. These material are limited and the clinical/caretaker should creat additional materials and when required, based on the guidelines provided under each level in each area.

The modalities, areas and levels to be chosen for an individual patient depends entirely on a thorough evaluation and assessment of the patient's linguistic skills. Those modalities in which the patient has difficulty are chosen had again, within these modalities, the areas affected are chosen. These areas are organized in a hierarchy of difficulty for each patient.

Every aphasic patient may not show the same hierarchy of difficulty as given in the LOT program. The therapist should be flexible in preparing the LOT program for each

individual aphasic. In a moderate Rroca's aphasic, for example, with a fair amount of gestural communication, area 4. simple speech acts and area 5, speech acts of the gestural and gestural-verbal communication modality can be begun first. Once the patient is able to complete the activities in those areas, focus can be shifted to the treatment of oral expression. Simultaneously, activities for visual processing, graphic expression and auditory processing can be carried out. For a Broca's aphasic more time should be spend on the expressive modalities than the receptive modalities.

In a severe Wernicke's aphasic, for example, who is able to recognize environmental sounds and verbal questions, a hierarchy of items starting focom level 3 of the area of recognition of auditory stimuli in the Auditory perceptual processing modality can be begun gradually moving on the auditory comprehension modality. Thus for a Wernicke's one needs to spend more time on receptive modalities than expressive.

ACTIVITIES FOR AUDITORY PERCEPTUAL PROCESSING DEFICITS :-

Area 1 :- Awareness of Auditory Stimuli:-

The aphasic individual has to raise his hand whenever a auditory stimulus is present.

The auditory stimuli presented should be hiearchial.

1. Recorded environmental sounds and music.

E.g. door slamming, telephone ringing, cooker whistle, clock alarm ringing, door bell, violin, tabla, flute, veena, harmonium, hammering.

2. Recorded human and animal sounds -

E.g. laughing crying, singing, man's voice, woman's voice child's voice, dog barking, cat meowing, cow moving goat bleating, duck quacking.

3. Record environmental sounds, human and animal sounds and music presented one after another. The aphasic raises his hand only for human and animal voices and keeps his hand lowered for environmental sounds and music.

Area 2 :- Recognition of Auditory Stimuli :-

The aphasic individual has to match the auditory stimuli with the corresponding pictures. Two pictured stimuli should be presented along with the auditory stimuli and the aphasic should point to the appropriate picture. In the following set, the appropriate pictures are underlined.

1. Recorded environmental sounds and music:-

E.g.

1. Telephone Ringing	Train
2. Flute	Carhorn
3. Alarm clock	Violin
4. Cooker Whistle	Hammering
5. Tabla	Airplane
6. Motor cycle	Poor slamming

2. Recorded samples of speech in the aphasics mother tongue presented along with linguistic stimuli of a language, patient is not familiar with. The patient raise his hand when the linguistic stimuli of his mother tongue is presented. Any meaningful linguistic stimuli Can be presented randomly.

3. The next level involves the aphasic ability to recognise the communicative intent of a message.

At this level, commands and yes-no question are randomly presented to the aphasic. The aphasic has to respond with the appropriate gesture when a command is presented and with either 'Yes' or 'No' when a Yes - No question is presented.

E.g. क्या आप डाक्टर हैं?
नाक दिखाओ।
कलम उठाओ।
क्या आज इतवार है?
क्या आप चाय पीते हैं?

As therapy progresses, the patient will be required to give additional verbal response other than 'Yes' or 'No'.

Area 3 :- Monitoring Speech :-

1. The aphasic patient should be auditorily presented a subject-object-verb utterance in response to an action picture. Present a few grammatical utterance and a few ungrammatical utterance. The patient has to determine whether the given utterance is grammatically correc.. or not.

E.g. For the action picture of a woman washing clothes.

Correct Sentence औरत कपडे धो रही है।

Incorrect Sentence औरत धो कपडे रही है।

2. The patient has to formulate a subject - object - verb utterance in response to an action picture which is recorded and played back to the patient for him to determine whether or not his utterance is grammatically correct.

3. The next level of difficulty requires the patient to judge whether his utterance is grammatically correct, immediately following his response to an action picture. Additional levels of difficulty would require the patient to monitor his utterances for phonemic accuracy, sentence completeness and content appropriateness.

ACTIVITIES FOR AUDITORY COMPREHENSION DEFICITS

Area 4 :- Comprehension of single Units :-

1. The patient should be presented with monosyllabic nouns in unrelated series. the patient is required to point to the appropriate picture when the underlined word is auditorily presented.

LIST OF PICTURES MONOSYLLABIC NOUNS IN UNRELATED SERIES :-

1. छत रेल फूल
2. जेब लाल बीस
3. बस नल आग
4. नाक नोट तेल
5. आम तीन घास
6. फूल आग डाक

2. The patient should be presented pictured monosyllabic nouns in related series. The underlined words are auditorily presented and the patient has to point to the appropriate picture.

1. बस रेल कार
2. नाक मुँह कान
3. दस तीन चार
4. सेब फल आम
5. सिर तेल बाल

3. The difficulty level can be increased by increasing the word length, including less frequent and unfamiliar words, altering semantic class, and grammatical class.

Area 5 :- Comprehension of Short Series -

1. New sets of three printed words are placed in front of the patient. The words in given row are presented auditorily and the patient has to point to the appropriate series.

The stimuli used are printed nouns and verbs. If the patient is unable to read, pictured stimuli can be used. The first level includes presenting the items in related series.

1. कान नाक पैर ; राजा रानी राजकुमार
2. दिन महिना साल ; उत्तर दक्षिन पूर्व
3. घर कमरा दरवाजा ; गाना नाचना हसना
4. खाना पकाना इस्टो ; सिर बाल टोपी

2. The following sets of three printed words are placed in front of the patient. The words are unrelated in a series. The words in given row are auditorily presented and patient has to points to the appropriate series. PRinted are pictured stimuli are used.

1. मेज फल खेत, देखना दुध पैर
2. पलंग कितान घास; रोना फूल कपडे
3. लडका दिन रुख , आँख साप बस
4. गाय ट्रक पेड़ ; नल शाला बिल्ली
5. बकरी किला आदमी ; मिट्ठी बच्चा गिलास

3. To increase the difficulty, the following parameters can be altered; word length, frequency of occurrence of words, grammatical class, and semantic class.

Number series, phoneme series (letter series) can be begin once the patient is able to grasp the word series task.

Area 6 :- Comprehension of short Meaningful Linguistic Units

1. The patient should be presented with three action pictures and auditorily presented with an imperative sentence. The patient is required to select the most appropriate picture.

Action pictures	Imperative Sentence	Expected Response
W a s h i Eating Drinking	लड़का दूध पी रहा है।	t o r pick the picture containing the action 'drinking'

To increase the difficulty of the task, complex actions can be taken up.

Action pictures	Imperative Sentence	Expected Response
H i t t i Collecting Smelling	आदमी रुपये वसूल कर रहा है।	t o r picks u p the action picture of "collecting"

2. The patient should auditorily be presented with Yes No question and is required to indicate 'Yes' or 'No'. The questions range from simple to difficult questions.

1. क्या बच्चे सोते हैं?
2. क्या घर पढ़ा सकता है?
3. क्या रानी औरत होती है?

4. क्या नमक खट्टा है?
5. क्या कुत्ता अमीर हो सकता है?
6. क्या मेज टूट सकती है?

Sentence type, length and ----------can be altered to add difficulty.

Area 7 :- Comprehension of Sentences :-

1. Three pictured nouns are placed in front of the patient and auditorily present a sentence with the noun omitted. the patient is required to select the picture word most appropriate to complete the sentence.

Sentence	Picture Nouns	Expected Response
आदमी ___ में रहता है।	बिल्ली (cat) खिडकी (window) घर (House)	Patient selects the picture of House.

A few examples of such sentences :-

1. डाकिया ___ लाया। (चिट्ठी)
2. लडके ने ___ फेंकी (गेंद)
3. बच्चे ___ पढ रहे है। (किताब)
4. डाक्टर ने ___ दी। (दवाई)
5. लडकी अपनी ___ को मिलने गयी (नानी)

2. Longer sentences to increase the complexity of the task can be taken.

1. हमने मेज ___ में रख दिया। (रसोई घर)
2. रोज सुबह, मेरे पिताजी ___ पढते है। (अखबार)
3. मेरे भैया के खोए हुए मोजें ___ के नीचे मिले। (पलंग)

4. मैंने ____ को छोटा डब्बा खरीदा। (चूड़ियों)
5. हम सब ____ देखने सिनेमाघर गए। (सिनेमा)

Additional levels of difficulty can be introduced by altering stimulus length, sentence types, grammatical contrasts and frequency of occurence of words.

Area 8 :- Comprehension of Paragraphs :-

A paragraph of about 3 - 4 sentence in length should be read out to the patient. The patient is required to respond with 'Yes' or 'No' for the questions related to the content.

Later, paragraphs containing more sentences, longer sentences, syntactically complex, unfamiliar words, unfamiliar topics can be used. The patients attention, interest and motivation should be considered. The paragraphs can be chosen accordingly.

Area 9 :- Comprehension of Narratives and Discourse:- 1

Read aloud newspaper articles containing 10 - 12 sentence; ask inferential and factual questions related to its content. The patient is required to respond with "Yes" or "No".

2. The patient is required to follow T.V. and radio news and programs; and questions related to it are to be answered.

ACTIVITIES FOR VISUAL PROCESSING DEFICITS

Area 1 :- Matching Non Verbal Material :

1. Pair of identical familiar objects are taken. The set of the objects are placed in front of the patient. The patient should be presented with the replica of the underlined words, and is required to point to the appropriate matching object.

1.	Cup	Key	Pen
2.	Book	Ring	Comb
3.	Knife	Place	Ball
4.	Earring.	Bowl	Spoon
5.	Glass	Shoe	Key.

2. A set of three pictured objects are placed in from of the patient. The object representing the underlined words should be presented and the patient is required to place it on point to the corresponding picture.

1.	Book	Ball	Comb
2.	Plate	Earring	Pen
3.	Knife	Pencil	Brush
A.	Spoon	Box	Ball
5.	Key	Doll	Watch

3. The patient should be presented with non-identical pairs of pictures representing the same objects. The set of pictures are placed in front of the patient. The patient should be presented with the alternate pictured representation of the underlined word, and he/she is required to points to the appropriate picture.

The task can be made more difficult by presenting choices from the same semantic category colors, forms and actions can also be included.

1.	Airplane	Dress	Table
2.	Television	Cap	Tree
3.	Flower	Train	Dog
A.	House	Shirt	Car
5.	Apple	Boat	Chair.

Area 2 :- Matching Verbal Material :-

1. Sets of three printed words are placed in front of the-patient. The patient should be presented with a card with the underlined word printed on it. The patient is required to point to the matching word in the erries. Visually dissimilar words are presented first followed by visually similar words.

1.	मार	कान	खाना
2.	लड़का	कपड़ा	लाना
3.	लाल	कलम	दिन
4.	मेज	अपना	काम
5.	गलत	दूर	महिना

1.	माल	मार	मास
2.	कपड़ा	कमरा	कमला
3.	कान	काम	काश
4.	दूध	दूर	दूत
5.	कलम	कमल	कमाल

1.	तुम आवो	गीले कपडे
2.	एक घंटा	नया किताव
3.	गरम दूध	पैसे दो
4.	चले जाओ	दिन भर
5.	उनसे कहो	दस दिन

Area 3 :- Visual Correspondence/ Recognition :-

a. Association of Visual Materials.

1. Real words and Non words are presented in series. The patient is required to point to the real word.

1.	कलम	परामे	करया
2.	फतव	दिमाग	वनह
3.	हमज	अजवे	सुबह
4.	दरवाजा	वकेल	कवमे
5.	मरबु	खेत	चरवह

2. Real words, non words and psendo words are presented in a series. The patient is required to point to the real word.

1.	आजाद	वरजे	खाजाद
2.	मरम	गरम	कवस
3.	राजा	अजर	वाजा
4.	गहिमा	महिमा	रोनव
5.	पत्रिमा	मवह	पत्रिका

b. Association of Material within a super ordinate category.

1. The patient should be presented with fifteen pictures in front of him to sort into three unrelated categories, each consisting of 5 members. The stimuli used are sets of pictured nouns belonging to the same category

	रसोई सामान	गाडियाँ	कपडे
1.	पतिला	बस	मोजे
2.	कढ़ाई	रेल	कुर्ता
3.	चमच	जहाज	टोपी
4.	गिलास	कार	कमीज
5.	चाकू	मोटर	पतलून

2. The patient should be presented with ten pictures of the same semantic category to be sorted into two sub categories.

	खाने के पदार्थ			
1.	सेब	[फल]	गाजर	[सब्जी]
2.	आम		आलू	
3.	केला		पालक	
4.	संत्रा		प्याज	
5.	अंगूर		टमाटर	
	प्राणी			
1.	शेर	[जंगली]	बिल्ली	[पालतू]
2.	ऊंट		कुत्ता	
3.	चीता		घोडा	
4.	सीह		गाय	
5.	हाथी		मुर्गी	

Area 4 :- Reception of Gestured Message :-

1. The patient should be presented with three real objects. Gesture the function of one object, and the patient has to point to the corresponding item.

2. The patient should be presented with three action pictures. Perform the action, and the patient is required bo point to the corresponding picture.

3. Three line drawings of objects are presented bo the patient. Gesture the function of object; the patient is required to point to the corresponding drawing.

The difficulty of the task can be increased by using two or more gestures in combination, for matching.

Area 5 :- Recognition of Spelling :-

1. The patient should be presented with a picture. Printed words with and without spelling mistakes are presented to the patient. The patient is required to point to the correctly spelt word corresponding to the picture.

1. कागज - कगज
2. फूल - फुल
3. औरत - ओरत
4. लडकी - लडकि
5. यज्ञ - यज्ञा

2. The patient should be presented with sets of three sentences, containing words with or without spelling mistakes. The patient is required to select the sentence with the correct spelling.

1. a. किताब का दाम बीस रुपया है।
   b. किताब का दाम बस रुपया है।
   c. किताब का दाम बास रुपया है।

2. a. लडकी ने सिर पर फल रखा है।
   b. लडकी ने सिर पर फूली रखा है।
   c. लडकी ने सिर पर फूल रखा है।

3. a. पिताजी अखबार पढ़ रहे है।
   b. पिताजी अबार पढ़ रहे है।
   c. पिताजी अखबर पढ रहे है।

Area 6 :- Reading Comprehension :-

1. The patient should be presented with three pictured nouns and a printed word. The patient is required bo point to the appropriate picture which the printed word represens.

2. The patient should be presented with three, printed two - words phrases. A pictured noun is placed in front of the patient, the patient is required to point to the phrase corresponding to the picture.

Pictured Noun	Printed Phrase	Expected Response
Red Shirt	नीला कमीज लाल किला लाल कमीज	Points to the phrase लाल कमीज
Hot Milk	गरम पानी गरम दूध ठंडा दूध	गरम दूध

Difficulty can be introduced by including difficult vocabulary increased length and syntatic complexity.

Area 7 :- Reading Complex Material :-

1. The patient has to read a short newspaper advertisement. True/False statements about the content of the advertisement

is provided in printed form or may be auditorily presented.

The patient responds with 'True' or 'False'.

सर्फ की खरीदारी मे ही समझदारी है। १/२ किलो सर्फ सिर्फ २५ रु.

1. यह विज्ञापन तेल का है। (ग़लत)
2. यह सामान लिटर मे मिलता है। (ग़लत)
3. यह सामान और कई नामों में मिलता है। (सही)
4. आधा किलो सिर्फ २५ रु। (सही)

2. The patient has to read a short newspaper item True/False statements about its content are provided in printed form or may be auditorily presented. The patient responds with "true" or "false".

Additional levels may be developed by increasing the length and complexity of the material.

ACTIVITIES FOR GESTURAL AND GESTURAL VERBAL COMMUNICATION

Area 1 :- Attention :-

The aphasic patient gains the attention of the listener by some method other than verbal language. Attention may be gained through any of the following :-

Eye contact

Touch

Vocalization

Gesture

Combination of the above

For example, and aphasic may touch the clinician to attract attention.

Before the presentation of any stimulus in the therapy task, the clinician should see to it that the patients attention is drawn towards it.

Area 2 :- Acknowledgment of Message Received :-

The aphasic patient is required to employ any of the following methods to indicate that a message has been received -

Head nod

Head shake

Vocalization

Gesture.

For example, the aphasic patient nods his head when the clinician indicates that his son has accompanied him

Area 3 :- Gestural Communication :-

a. Single Gestures.

1. The patient should be presented with a picture of a particular emotion or feeling. The emotion or feeling is expressed along with the picture. The patient is required to imitate the emotion or feeling. The patient is later, required to provide the facial expression only on presentation of the picture and without a model.

LIST OF EMOTIONS OR FEELING - fear, dis like, pleasure, surprise, anger, pain unhappiness, sympathy.

2. The aphasic patient should be presented with a picture depicting a situation associated with a conventional gesture. The patient should be provided with the gestures which has to be imitated. Later the patient is required to provide the gesture without a model.

The stimuli used are pictures depicting situtions associated with conventional gestures.

Gestures :-

1. Finger to lips : be quiet
2. Hands over ears : Noisy
3. Pinching Nose : Unpleasant smell
4. Rubs Stomach : Hungry
5. Thumb to Mouth : Thirsty.

In case of hemiplegia, gestures can be modified for execution with one hand.

3. The patient should be presented with the pictures of actions as well as provided with a model to imitate. The patient, then has to provide the gesture without a model, whenever the picture is presented.

LIST OF ACTIONS

1. Eating	6. Reading
2. Sleeping	7. Cooking
3. Drinking	8. Washing
4. Writing	9. Combing hair
5. Running	10. Driving.

As therapy progresses pictures are eliminated and appropriate communication situations should be designed in which the patient provides the appropriate gesture.

b Gesture Combinations :-

1. The patient should be presented with action pictures, and is required to execute two or more gesture to present the information in the picture.

For example :-

Action Picture	expectc-d Response
Cooking	Gesture of stirring in a Vessel with spoon and Gesture of licking lips indi---- tasting good

2. The patient has to use appropriate gestures while describing an event, while communicating with family member while conveying ideas and opinions regarding newspaper articles or T.V. programs. The gestures should be generalized to everyday communication tasks.

Area 4 :- Simple Speech Acts :-

1. The patient should be presented with an action picture and is required to communicate one of the following semantic functions contained the picture; agent - action, action-object, or agent-object. The patient has to point to the agent and object and demonstrate there action).

E.g. The patient point to the Man and Food and gestures Eating along with pointing and gestures to communicate the type of message being sent as well as its content. Even intonation contour with a drop at the end for naming, rising contour for questioning, sharply rising & falling intonation contour signaling readiness for the next stimulus are a few example which the patient has to perform at this level.

Area 5 :- Speech Acts :-

The patient increases the complexity of communication by combining verbal and non verbal aspects/

1. The patient should be presented with an action pictures and is required to communication information about some aspect of the picture by providing at least one word supplemented with an appropriate gesture.

For example, for the picture of a girl reading, the patient says "Girl" and gestures "Reading".

2. The patient should be presented with an action picture the patient is required to communicate some aspects of the picture by providing on or more words in combination with one of more appropriate gestures.

The amount of verbalizing and/or gesturing must be gradually increased at this level.

Once the patient is able to perform well and oral speech increases, the focus in treatment shifts to activities for facilating oral expression.

ACTIVITIES FOR ORAL EXPRESSION

Area 1 !- Automatic Speech Series :-

1. The patient should be orally provided with items in a series. The patient is required to produce the series in unison with the caretaker. A written form of the stimuli may also supplement the oral stimuli.

Items in Series Include:-

1. Counting 1 to 10
2. Days of week
3. Months of year
4. alphabets.

2. The patient should be provided with first item in the series orally with written supplement. The patient is required to provide the remainder of the items. Missing items are supplied by the caretaker.

3. The patient has to say the elements in a series without a oral or written model.

Area 2 :- Phonological Articulatory Production :-

1. The patient should orally be presented with abstract words, and is required to produce each item correctly five times.

Examples : बहादुरी परिवर्तन अमर
खुशामत अभाव क्षमा
अपमान श्रेष्ठता सच्चाई

Area 3 :- Repetition :-

The caretaker should auditorily present a sentence, and the patient is required to imitate it. Start with simple sentence and move to complex and abstract sentences.

Area 4 :- Oral Reading :-

Printed words should be presented to the patient, who is required to read it aloud. High imageability and low imageability content words are presented. To increase the difficulty adjectives, verbs, functional words and non words; phrases and sentences can be used.

Area 5 :- Word Retrieval or Anomia :-

1. The patient should be presented with a sentence, either auditorily or visually, for completion. The names of three types of cues are placed on written cards. The patient should be given a clue when he fails to complete the sentence. The remaining cues are atempted if success is not achieved on the first trial. If the patient provides an appropriate word of a lower vocabulary level, he/she is encouraged to think of a synonym.

1. हमारे प्रधान मंत्री की रक्षा ____ करते हैं। (अंग रक्षक)
2. हर खेल मे एक ____ होता है। (कपतान)
3. गृहिनी ने मेज के ऊपर नया ____ बिछाया। (कपडा)
4. रेल दुर्घटना मे 50 लोग ____ हुए। (ज़खमी)
5. गणतंत्र दिवस पर स्कूल मे ____ झंडा फैलाते हैं। (प्राचार्य)

Gradually the cues should be minimized.

Area 6 :- Oral Formulation :-

The patient should be presented with two sentences to combine and orally produce. Pictures can be used to supplement production.

1. a) आदमी रेल गाडी के पास खड़ा था।
   b) रेल गाडी छूट रही थी।
   आदमी जिस रेल गाडी के पास खड़ा था वह गाडी छूट रही थी।
2. a) माँ धोबी को बुला रही थी।
   b) धोबी देर से आया।
   माँ जिस धोबी को बुला रही थी वह देर से आया।
3. a) लडके खाना खाने हॉटेल गए हैं।
   b) हॉटेल घर के पास है।
   लडेक जिस हॉटेल में खाना खाने गए हैं वह घर के पास ही है।
4. a) बस मे जो औरत बैठी थी, उसे चोट लग गयी।
   b) बस ट्रक से टकराया।
   बस ट्रक से टकराने से, बस मे बैठी हुई औरत को चोट लग गयी।

Area 7 :- Conversation :-

The patient should be engaged is conversation about a familiar topic for 5 minutes. Later he/she is engaged is conversation about unfamiliar topics. The patient should be encouraged to talk to unfamiliar speakers in familiar as well as unfamiliar situations. The number of participants can also be increased.

Some of the topics for Conversation are

1. Patient's hobbies
2. Patient's job
3. Activities of family members
4. A current event taking place in the country of which the patient is only partially aware of.

Area 8 :- Discourse :-

1. the patient is required to orally provide a narrative about material read, or viewed.

1. Newspaper article
2. Television program

2. The patient is required to orally outline steps involved is certain activities.

1. Organizing a party
2. Organizing a cultural event

3. The patient is required to give a brief speech about a particular subject matter

1. Pros and cons of mass media.
2. Problem of unemployment in India.

ACTIVITIES FOR GRAPHIC EXPRESSION

Area 1 :- Tracing and Copying Nonverbal Material :-

1. The caretaker should present drawings of functionally familiar objects and the patient has to trace them.

2. The caretaker should present a line drawing of the objects and the patient has to copy it.

3. The caretaker should present a line drawing for 10 sec., and the patient is required to draw it from memory.

4. To increase the difficulty of the task, more complex line drawings can be introduced.

LIST OF A FEW FUNCTIONALLY FAMILIAR OBJECTS USED FOR TRACING AND COPYING ACTIVITIES :-

01. Cup	11. Clock
02. Tree	12. T.V.
03. Chair	13. Bed
04. Comb	14. Cupboard
05. Tree	15. Tooth brush
06. Door	16. Jug
07. Ladder	17. Knife
08. Cap	18. Pen
09. Bag	19. Plate
10. Box	20. House

Area 2 :- Tracing and Copying Verbal Material :-

This area includes two activities.

1. Tracing and copying verbal material when single items are presented.

2. Tracing and copying when the verbal materials are presented in a series.

a. Single item.

1. The patient should be presented with a printed letter, and he/she has to copy it.

LIST OF HINDI LETTERS

01.	म	11.	उ
02.	अ	12.	र
03.	स	13.	द
04.	प	14.	श
05.	इ	15.	क
06.	य	16.	घ
07.	ह	17.	थ
08.	ए	18.	च
09.	ओ	19.	त
10.	ग	20.	फ

2. The patient should be presented with a number, and he/she has to copy it.

LIST OF HINDI LETTERS

01. ४

02. २

03. २

04. ७
05. ३
06. १
07. ९
08. ०
09. ६
10. ५

3. The patient should be presented word,and he/she has to copy it.

LIST OF HINDI LETTERS

01. अब
02. कम
03. दस
04. साल
05. मार
06. पाप
07. डाक
08. आग
09. घर
10. रात
11. खुश
12. भीड़
13. फूल
14. दोष
15. कौन
16. देर
17. मुँह
18. यह
19. पोता
20. पुल

To increase the difficulty of the task, longer words and number can be introduced.

B. Items in a Series.

1. The patient should be presented with a series of printed letter, and which he/she has to copy.

LIST OF PRINTED SERIES OF LETTERS

01. म र प द
02. इ स क र
03. घ ह ज ल
04. प उ म द
05. ह ए ग च
06. ल फ द र
07. च प म त
08. द म ल ह
09. यज प त
10. श द अ इ

2. The patient should be presented with a series of numbers which he/she has to copy.

LIST OF PRINTED SERIES OF NUMBERS

01. ४ १ ५ ७
02. ३ २ १ १
03. ६ ७ ४ ५
04. २ ९ ६ ०
05. ७ १ २ ४
06. ३ २ ३ ४
07. ९ ० ७ ५
08. १ ३ ९ १
09. ४ ९ ८ ९
10. ८ १ ० ४

3. The patient should be presented with a printed series of words which he/she has to copy.

LIST OF PRINTED SERIES OF WORDS

01.	अब	इस	लाल	11.	बात	कप	उस
02.	यह	जेब	गाय	12.	रस	नल	जान
03.	डाल	पैर	मार	13.	वह	जीव	रेल
04.	मुँह	रात	उस	14.	आम	यह	छत
05.	काम	बात	फल	15.	आग	दस	जब
06.	नाक	जिस	देर	16.	नल	जिस	सेब
07.	दाम	तेल	दस	17.	जोश	ठीक	क्या
08.	दिन	मोल	खूट	18.	सीर	शाप	चीर
09.	सच	खाट	चीर	19.	हात	गाय	काम
10.	हम	आप	कम	20.	मेज	रात	लाल

To increase the difficulty of the task, longer words and more numbers can be introduced in the series.

Area 3 :- Writing Familiar Material :-

1. The patient should be presented with segments of highly familiar printed words, with one element missing. The patient has to write the missing element.

LIST OF PRINTED SEGMENTS OF HIGHLY FAMILIAR MATERIAL WITH ONE ELEMENT OMITTED

01. एक दो ___ चार
02. सोमवार मंगलवार ___ गुरुवार
03. ___ मै जून जूलै
04. ३४ ___ ३६ ३७
05. क ख ___ घ
06. गुरु वार शुक्रवार शनिवार ___
07. ___ १२ १३ १४

08. जानेवरी ____ मार्च एप्रिल

09. बहत्तर ____ चौहत्तर पचहत्तर

10. य ___ ल व

2. The patient is required to write highly over learned materials in a given series.

LIST OF HIGHLY OVER LEARNED MATERIAL

1. NAME & ADDRESS
2. NUMBERS FROM 1 TO 10
3. HINDI ALPHABETS
4. DAYS OF THE WEEK
5. MONTHS OF THE YEAR

3. The difficulty level can be increased by introducing activities such as writing date, address, signature in a letter; filling in a form requiring personal details and so on .

Area 4 '- Written Spelling :-

The patient should be provided with a word, and he/she has to write it. The stimuli used are nouns. Short & simple words should be used first, and , gradually, as the patient makes progress, longer and more difficult words should be introduced. As therapy processes, verbs, adjectives, and functional words should be incorporated.

Area 5 :- Written Naming :-

The patient should be presented with a pictured noun, and he/she is required to write -------- Once again an hierarchy of simple monosyllabic nouns to complex nouns is to be established. To increase the difficulty, increased word length, higher level of vocabulary and verbs, adjectives, and functional words should be incorporated.

Area 6 :- Written Formulation -

1. The patient should be presented with an action picture, and he/she is required to write a short sentence describing the activity. The materials used should be action pictures to elicit highly familiar sentences of about 4 - 5 words in length in correct grammatical structure i.e, S 0 V order.

	Actions	Expected Response
01.	Sleeping	बच्चा सो रहा है।
02.	Eating	लड़का खाना खा रहा है।
03.	Washing	औरत कपड़े धो रही है।
04.	Writing	लड़की लिख रही है।
05.	Drinking	आदमी पानी पी रहा है।
06.	Reading	बच्चे पढ़ रहे हैं।
07.	Singing	औरत गा रही है।
08.	Cooking	लड़की खाना पका रही है।
09.	Running	खिलाड़ी दौड़ रहा है।
10.	Sitting	बिल्ली मेज के ऊपर बैठ रही है।

2. The patient should be presented with two sentences, either orally or in written form, and he/she is required to combine them into one complex written sentence. The length and grammatical complexity can be increased as therapy progress; use of punctuation may also be incorporated.

a. मैं कल आऊँगी।
b. आप का काम करूँगी।
Patient response मैं कल आकर आप का काम करुँगी।
a. तुम जलदी आओ
b. तुम्हारा काम होजाएगा।
Patient response अगर तुम जलदी आए, तो तुम्हारा काम हो जाएगा।
a. तुम यहाँ आओ।
b. रीता को साथ लेकर जाओ।
Patient response तुम यहाँ आओ और रीता को साथ ले जाओ।

Area 7 :- Writing Complex Material :-

The following hierarchy can be followed in writing complex materials. Increasing length and complexity of the output is required of the patient.

1. The patient is required to write a narrative about a newspaper article he has read recently, or of a T.V. program he has watched recently.

2. The patient is required to write letters to friends and family members.

3. The patient is required to write an essay on any topic.

LINGUISTIC PROFILE THERAPY FOR THE MILD APHASICS :-

The linguistic profile therapy is based on the rationale, that rehabilitative program based on individual aphasic's linguistic profile are on concrete grounds providing both measurable precision and direction at every stage of therapy. (Karanth, 1988). The therapist should obtain the linguistic profile of aphasics by analyzing their linguistic abilities at the phonological, syntactic and semantic levels, both in terms of comprehension and expression, by using the linguistic profile test (karanth, 1980).

The linguistic profile therapy is based on the scores obtained in the linguistic profile test. The scores obtained in each of the three sections,that, of phonology, syntax and semantics, out of a maximum of 100 each, are compared with each other. That section in which the patients performance is the poorest is taken up for therapy. The rationale underlying this choice is that it is not always possible to clearly delineate phonological errors as against those of syntax and semantics and vice versa. These three linguistic levels are normally interwoven. They are not clearly separated in the normal use of language and a deficit at any one level, even if strictly at that level, will effect the patient's performance at other levels. A clear cut deficit at one level cannot be expected.

The level at which the greatest deficit is observed is taken up for therapy on the premise that, it is at this level that greatest difficulty lies and improvement at this level will not only improve the aphasics deficit at that level but also in the overall communication. When the aphasic's deficit is more or less the same at two levels, both the levels are taken up simultaneously.

Within each level a hierarchy of items is made from least to the most difficult. The least difficult items are chosen first to facilitate success and continuance in therapy as well as to keep up the patient's motivation.

The list of items at the three levels are as follows.

I PHONOLOGY

A. Phonemic Discrimination
B. Phonetic Expression
C. Running Speech

II SYNTAX

A. Morphophonemic structures
B. Pluralforms
C. Tenses
D. PNG Markers
E. Case Markers
F. Transitives, Intransitives and Causatives
G. Sentence Type
H. Predicates

I. Conjunctions, Comparatives & Guotatiues,

J. Conditional Clauses

K. Participial Constructions

III SEMANTICS

A. Semantic discrimination

B. Semantic expression

01. Naming

02. Lexical category,

03. Synonymy

04. Antonymy

05. Homonymy

06. Polar questions

07. Semantic Anomaly

08. Paradigmatic relations

09. Syntagmatic relations

10. Semantic contiguity

II. Semantic similarity

IV :- Discourse :-

Using linguistic profile test, each aphasic is evaluated for the above mentioned items and a hierarchy of items is developed depending on his/her performance at each level. Therapy progresses according to the hierarchy from least difficult to more difficult items. Thus this is a more tailor made approach of rehabilitation where choice of items depends on the performance of the aphasic at various levels.

Deblocking technique can be used at each level. Not only is a verbal stimulus presented to the patient but visual, graphic and tactile stimulus is also presented to facilitate response. For example, if the patient is unable to respond to a verbal stimulus, the same can be presented in a written form. Real objects or pictures can be used whereever appropriate. Gradually, during the course of therapy, those modalities are withdrawn in which the patient performs well, and the patient is encouraged to respond to verbal stimulus.

The examples provided under each section is limited and the caretaker has to prepare additional materials, depending on the aphasics motivation, interest, intellectual level, based on the guidelines provided under each section.

I. PHONOLOGY

1. Phonemic Discrimination :-

On the basis of the linguistic profile test, the therapist gets to know, what are the minimal pairs in which the patient has failed and which are the features the patient cannot discriminate. Based on this, the therapist should prepare several minimal pairs for each single feature the patient fails to discriminate. Thus, for example, if the patient fail to discriminate between a long and a short vowel, the patient should be provided with list of words and sentence containing this feature.

For example -

चिट्ठी	चींटी
मार	मर
उन	ऊन
काम	कम

2. Phonetic Expression :-

Once the therapist gets to know the sounds in which the patient has difficulty, he/she should prepare a list of words containing the stimulus word in the initial, medial and final positions as well as in clusters. The patient. is required to repeat each word clearly. Thus if the patient has difficulty in fricatives, a list of word containing the fricatives in initial medial and final position is prepared for drilling.

For example.

सिपाही	पेन्सिल
साइकल	नस
साबुन	गिलास

Thus list of words should be prepared for each defective sound. List of sentences containing the fricatives will also be used for drilling.

1. शेर ने सिपाही को मारा।
2. सीता सुबह सो रही थी।

3 Running Speech :-

In order to facilitate the stabilisation and carry-over of the defective sound, patient is required to read paragraphs containing the defective sound.

SYNTAX :-

a. Morphophonemic Structures :-

Most languages have certain rules to join two or more? words to form a compound word. Similarly, verbs are affixed to other verb-roots to form compound verbs.

For example :- मक्खन चुरानेवाला = माखनचोर

यह किताब पढ़लो = यह किताब पढ़ो

Based on the assessment with linguistic profile test, the therapist gets a basic information on the kind of errors the patient makes in the morphophonemic structures. If the patient is unable to use the correct compound words, he should be given a few examples to demonstrate the combination of words to form compound words.

सूर्य + उदय = सूर्योदय

देश का उद्धार = देशोद्धार

अग्नी की पूजा करनेवाला = अग्निपूजक

Similarly, the following affixes when added to a given verb root, gives a compound Verb.

पी जाना = पीना

तोड़ डालना = तोड़ना

चिल्ला उठना = चिल्लाना

Reception :-

The patient should be presented with both correct and incorrect forms and he/she is required to listen carefully and indicate whether the items are correct or not.

अकाल से पीड़ित = अकालपीड़ित Correct

पाप और पुण्य = पापुण्य Incorrect

विद्या + अभ्यास = विद्याभ्यास Correct

The patient can then be asked to correct the incorrect forms or point to the correct form when given alternates.

सद् + उपयोग = सदोपयोग Correct

मान + लेना = मानेना Incorrect

खा + डालना = खालना Incorrect

समझ + लेना	=	समझना (Correct)	समझाना (Incorrect)
राज + कुमार	=	राजाकुमार (Incorrect)	राजकुमार (Correct)
अब + ही	=	अबी (Incorrect)	अभी (Correct)

Expression :-

The patient is required to provide the correct compound word for the following.

	Expected Response
गिरह को काटने वाला	गिरहकट
गंगा का जल	गंगाजल

Verbal and/or written stimulus can be provided to the patient, Pictures like सूर्योदय, गंगाजल etc., can be used.

b. Plural Forms :-

Reception :-

Present the patient with the pictures of the singular and plural forms and he/she is required to point to the appropriate picture when asked. Use additional distractors as the patient progresses.

कुर्सि – कुर्सियाँ, लडकी – लडकियाँ, अंडा – अंडे, पेड़ – पेड़ों, घड़ि – घड़ियाँ

For example, When the caretaker says कुर्सियाँ, the patient has to point to the picture in which there are more than one chair. Similarly, when the caretaker says लड़की, the patient is required to point to the picture containing a single girl.

Expression :-

The patient is required to provide the correct singular and plural compound forms for the appropriate pictures.

For example:-

The caretaker first points to the picture of dog and thendogs. The patient is expected to say कुत्ता and कुत्ते

Similarly, a list of singular and plural words have to be prepared for drilling exercises.

The same exercises can be carried out using written stimuli instead of pictures. Gradually, pictures and written stimuli are with drawn and the patient says the plural form in response to the verbal stimulus.

c. Tenses :-

Reception :-

The patient should be presented with three picture depicting actions representing past, present and future tense.

For example, the three pictures can be,

Past लड़का पेड़ के ऊपर चढ़ गया।
Present लड़का पेड़ के ऊपर चढ़ रहा है।
Future लड़का पेड़ के ऊपर चढ़े गा।

The caretaker says a sentence and the patient has to point the picture representing the correct tense.

One more example is

Past बच्चे ने कमीज पहन ली।
Present बच्चा कमीज पहन रहा है।
Future बच्चा कमीज पहने गा।

Expression :-

The patient should be presented with two action pictures representing two tenses. The caretaker points to a particular picture and the patient is required to described the action using correct tense.

For example,

The two pictures are

1. लडका खा रहा है। (Present)
2. लडका खा चुका है। (Past)

The caretaker points to the picture 1. and the patient is required to say the correct present tense लडका खा रहा है।

Similarly, many such action pictures representing the? tenses can be used. Written stimulus can be used to supplement the pictures. Once the patient is able to carry-

out the above activities correctly, the caretaker can say a sentence in one tense and ask the patient to say the same sentence in the other tenses. For example, the caretaker says the sentence

मैं पढ़ रहा हूँ।

in present tense and requests the patient to say the past and future tenses i.e., मैं पढ़ चुका हूँ (Past); मैं पढ़ूगाँ (Future)

D. Person Number Gender (P.N.G) Marker :-

1. Person :-

Reception :-

The patient should be presented with pictures in which the three distinctions of person - First person, second person and third person are depicted. The caretaker says a sentence representing one of the distinctions of person and the patient is required to point to the appropriate pictures.

For example,

मैं खाती हूँ। (First Person)
तुम बैठे हो। (Second Person)
बच्चा सो रहा है। (Third Person)

Photographs of family members can be used for this activity.

Expression:-

The patient should be presented with pictures in which the three persons - first, second and third and the patient has to describe the picture using the appropriate person.

The verb should agree in person with noun.

For example, the caretaker points to the photograph of the patient eating, and the patient is require to say.

मैं खाती (खाता) हूँ।

If the patient, consistently, makes errors on a particular person - say third person (वह, वे), the patient should be given drills for that particular person.

For example, choose more picture in the third person and carryout reception and expressive activities for the same.

2. Number :-

Reception :- ,

The patient should be presented with action pictures in the third person, some pictures contain one individual performing the action while the others contain two or more individuals performing the action. The caretaker says a particular sentence and the patient has to point to the appropriate picture.

For example, a. वह पी रहा है।
b. वे पी रहे हैं।
c. कुत्ता पी रहा है।

The caretaker says (a.) and the patient is required to point to the picture of a boy drinking.

Expression :-

The caretaker points to a particular picture and the patient has to say the correct sentence with the appropriate number marker. The verb should agree in number with the noun.

For example, the caretaker points to the picture of many people drinking and the patient is required to say. वे पी रहे हैं।

3. Gender :-

Reception :-

The patient should be presented with action pictures in which either of the sexes is performing the action.

For example, बच्चा सो रहा है।
औरत सो रही है।
वे सो रहे हैं।

The caretaker says a sentence, and the patient is required to point to the correct picture. If the caretaker says बच्चा सो रहा है , the patient is required to point to the picture of the male child sleeping; and if he says औरत सो रही है। the patient is required to point to the picture of the woman sleeping.

Expression :-

The caretaker points to a picture and the patient is required to say the correct sentence using the appropriate gender markers. The verb should agree in gender with the

noun. For example, the caretaker points to the picture of men sleeping and the patient is required to say either वे सो रहे हैं or आदमियाँ सो रहे हैं।

As the patient progresses, questions can be asked requiring the patient to and the questions using appropriate person, gender and number markers.

For example, 1) तुम सुबह उठकर क्या करते हो?
2) मैं अब क्या कर रही हूँ?

e. Case Markers :-

The noun, pronoun or adjective takes a form to show its relation to neighboring words. These are the case markers. In Hindi, ने, को, का, से are some of the case markers.

Reception :-

The patient is presented with three action pictures.

For example, राम कलम से लिख रहा है।
राम ने जेब से कलम निकाली।
किताब और कलम मेज के ऊपर है।

The caretaker presents a sentence and the patient is required to point to the appropriate pictures.

Expression :-

The caretaker points to the picture and the patient is required to say the sentence using the correct case markers.

E.g. औरत मटके से पानी ले रही है।

To make the activities more complex, the caretaker can present a sentence with a wrong case marker and the patient has to correct it by using the correct case marker.

For example,

Caretaker : पेड़ ने काटो।

Patient : पेड़ को काटो।

Catetaker : मैं को पानी दो।

Patient : मुझको पानी दो।

f. Transitive, Intransitives & Causatives:-

Reception:-

The following action picture are presented to the patient.

पेड़ से फल गिरता है। (Intransitive)

गोपाल पेड़ से फल गिराता है। (Transitive)

मालिक नौकर से फल गिरवाता है। (Causative)

The caretaker presents a sentence verbally and the patient has to point to the appropriate picture.

A few more examples are,

I. 1. औरत सो रही है। (Transitive)

2. औरत बच्चे को सुला रही है। (Causative)

II. 1. बच्चा दूध पी रहा है। (Transitive)

2. माँ बच्चे को दूध पिलाती है। (Causative)

III. 1. यह काम करो। (Transitive)

2. यह काम कराओ। (Causative)

Expression :-

Using the same pictures as mentioned above, the caretaker points to a pictures the patient has to say the correct sentence!

The patient can also be given sentence verbally or graphically, with the verb missing which he has to provide either verbally or in written form.

E.g. 1. तुम यह काम खुद न कर सकते हो, तो दूसरों से _____ (करवाना)
2. पहले तुम खुद समझ लो, फिर दूसरों को _____ (समझाने) की कोशिश करो
3. हमारी नानी हर रोज हमको कहानियाँ _____ हैं। (सुनाती)
4. तुम नहीं जानते, मैं इस दर्जी से सब कपड़े _____ हूँ। (सिलवाता)
5. काम कब शुरू होगा? वे दस बजे काम शुरू _____ हैं। (करते)

g. Sentence Types :-

Reception :-

The patient should be presented with two pictures - one in which the book is kept on the table the other in which there is no book. The patient is then asked to point to the picture in which there is a book.

For example,

कौन से चित्र में किताब मेज के ऊपर है?
Patient points to the picture in which there is a book.

कौन से चित्र में किताब मेज के ऊपर नहीं है?
Patient point to the picture in which there is no book.

Similarly, negative, interrgation affirmative sentences can be depicted using pictures. The task of the patient is to point to the appropriate pictures when a question or a statement is made.

Expression :-

The patient should be encouraged to use questions and negatives to describe pictures.

For example,

कौन नाच रही है?

In response to a picture showing a girl dancing.

हार कहाँ है?

In response to a picture showing a chain in a box.

In case a patient has difficulty only in using questions but has no problems in negatives or affirmatives, receptive and expression activities should focus on the use of questions. Thus, depending on the difficulties of the aphasic, materials and activities should be developed which will focus on those aspects.

h. Predicates:-

Reception :-

The patient should be presented with pictures which requires the patient to use आपका, उनका, मेरा, उसका and so on to denote the possessor.

The caretaker presents pictures/photographs of family members. The patient is required to point to the appropriate picture/photograph in response to the given stimulus.

For example :

1. A picture/photograph of the patients book.

2. A picture/photograph of one of the family member's dog.

The caretaker says ये मेरी किताब है। and th& patient is required to point to the picture/photograph 1. In response to यह कुत्ता उनका है। the parent has to point to picture/photograph 2.

Expression -

Using similar kind of pictures/photographs the patient is encouraged to say the correct sentence using the appropriate words to denote the possessor.

A few more examples are :-

1. यह मेरी पत्नी की साड़ी है।
2. तुम्हारा कमरा कौन सा है।
3. यह तस्वीर मेरे बेटे की है।
4. उनका घर बड़ा है।

The caretaker can ask question to elicit the appropriate responses. The patient should be encouraged to ask questions using appropriate markers.

I. Conjunctions and Quotatives -

Reception :-

The patient should be presented with pictures and he/she has to point to the appropriate pictures.

Pictures	Stimulus	Response
1. Boy reading, girl reading, boy & girl reading	लड़का और लड़की पढ़ रहे हैं।	Pointing to the picture of boy & girl reading
2. Pen, pencil book	कलम या किताब दिखाना	Point either to pen or book
3. Pen, pencil book	पेन्सिल दिखाना, किताब नहीं	Point to pencil
4. Cow, cow & boy, cow hitting a boy	चूँकि गाय ने लड़के को मारा, वह गिर गया।	Point to cow hitting a boy

Pictures	Stimulus	Response
1. Book & pen on a table	Pointing to the picture	कलम और किताब मेज के अर है।
2. Egg, & fish on a plate	Pointing to the picture	अंडा और मछली प्लेट के ऊपर है।
3. Pen, scale, eraser in a box	Pointing to the picture	पेन्सिल, स्केल सब डब्बे के अंदर है।

J. Comparatives :-

Reception :-

The patient should be presented with pictures of identical objects which are either similar, smaller or larger then the other. The patient is required to point to the named object.

For example :-

Four pictures of various sizes of shirts are presented to the patient. The caretaker points to one of the shirts and says

1. इस से छोटी कमीज़ दिखाओ।
2. इस से बड़ी कमीज़ दिखाओ।

The patient is also required to point to the smallest and the biggest shirt.

Similarly pictures of various sizes of different objects can be presented to the patient. The patient has to point to the pictures of the smallest, biggest, smaller than & larger that the size of the object.

Expression :-

Patient should be presented similar kinds of pictures as used in the receptive activity. The patient is asked questions regarding the pictures which he/she has to answer using the appropriate comparatives.

For examples,

1. Trees of different sizes are presented, caretaker points to the biggest tree. The question asked is यह पेड़ कैसा है? The patient is required to answer यह पेड़ इन दोनों से बड़ा है।

2. Patient is presented with two identical shoes. The question asked is ये दोनों कैसे हैं? The patient is required to answer ये दोनों एक जैसे है।

3. Patient is presented with pictures of cars of different sizes. The caretaker points to the smallest car & questions. The patient is required to answer यह कार सब से छोटा है।

k. Conditional Clauses:-

Reception :-

The patient should be presented with four pictures of various objects. He is required to performance activity in response to the caretakers commands.

For example,

1. The four pictures are - shoes, socks, boots, chappals. The caretaker commands, अगर इन चित्रों में चप्पल है, तो हाथ उठाओ। and the patient is required to obey the command.

2. The patient is presented with pictures of various fruits. The caretaker commands, जब मैं आम कहूँगी, तब आम दिखाना।

3. The patient is presented with pictures of brinjal, flower, leaf and lady's finger and given the command, यदि गाजर का चित्र है, तो आँखें बंद करो। The patient is required not to close his eyes as there is no picture of carrot.

Expression :-

The patient is presented with few sentence verbally or graphically, with the conditional clauses missing, he/she has to fill the missing slots.

1. अगर आज पैसे मिले, ___ हम शहर जाएंगें।(तो)
2. ___ वह यहाँ पहुँचता, तो उसे आराम मिलता।(यदि)
3. तुम आते, ___ मैं भी तुम्हारे साथ चलता।(तो)

4. जब वह मेरे पास आएगा, ____ मैं उसे पैसे दूँगा। (तब)
5. ____ तुम नहीं खाओगे, तो पतले हो जाओगे (अगर)

The patient should be asked questions regarding daily events which he/she has to answer using the conditional clauses

Question	Answer
1. हम दवाईयाँ कब लेते हैं?	जब हम बीमार हो जाते हैं, तब हम दवाईयाँ लेते हैं।
2. क्या यह लड़का परिक्षा में सफल हो सकता है?	अगर वह पढ़ता है, तो जरूर सफल होगा।
3. उसे सर्दी कैसे नहीं लगती?	यदि वह गरम कपड़ा पहनता तो सर्दी नहीं लगती।
4. शीशा कब टूटती है?	यदि कोई पत्थर फेंकता है, तो टूट जाती है।
5. हम मोमबत्ती कब जलाते हैं?	जब बिजली चली जाती है, तब हम मोमबत्ती जलाते हैं।

1 Participial Construction :-

Reception :-

The patient should be presented with action pictures and is required to point to the appropriate pictures.

Examples.

The pictures of a boy walking, boy singing, boy singing and walking are presented to the patient. The caretaker says वह लड़का गाता हुआ पाठशाला से घर लौट आता है। and the patient has to point to the appropriate picture. Similarly, pictures for the following participial constructions.

1. लड़की रोती हुई आयी।
2. उड़ता हुआ पक्षी दिखाई दिया।

3. यह घड़ा पानी से भरा हुआ है।
4. मैं जुते पहने हुए कमरे में आया।

Patient can be asked questions using participial constructions.

1. क्या यह तुम्हारा लिखने वाला कलम है?
2. क्या यह तुम्हारा पेहने वाला चप्पल है?
3. क्या आप इस गाने वाली लडकी को जानते है?
4. क्या इस मरे हुए कुत्ते को आप जानते है?

Expression :-

The patient should be presented with similar kind of pictures used in reception activities. The caretaker points to a picture and the patient has to construct a sentence with the appropriate participle.

Example :-

1. वह गाना सुनते लिख रहा है।
2. वह पेड़ चढ़ते चढ़ते गिर गया।
3. वह किताब पढ़ते पढ़ते सो गया।
4. दो खिले हुए फूल मेज पर है।

SEMANTICS :-

a. Semantic Discrimination :-

A patient, who has difficulty in discriminating the various body parts, should be presented with pictures of various body parts. The caretaker points to the various body parts and asks क्या यह आपका ——— है? and the patient is required to respond with Yes/No. The caretaker should then name a body part and the patient is required to point to it.

Body parts - नाक, दायीं आँख, बायाँ कान, दायाँ हाथ, मुँह and so on.

Similar kind of activities can be carried out to facilitate discrimination of colors, furnitures, common objects and so on.

b. Semantic Expression :-

1 Naming :-

The patient should be presented with real objects and pictures of various common objects. The patient is required to name the object. Deblocking technique can be used to facilitate naming. The patient can be made to feel the object & see. the object, written form of the word can also be provided to facilitate naming.

2 Lexical Category :-

The patient is required to name atleast five items under each lexical category - animals, fruits, vehicles, furnitures, bodyparts, colors, shapes and so on. Initially

pictures of various categories can be mixed and given. The patient is required to sort them out, name each category e.g. furniture and the name each item of the category banana, orange, grapes, etc.,

The caretaker presents a word and the patient is required to provide a word with identical meaning.

For example.

1. दुष्ट – धूर्त
2. मूर्खता – बेवकूफी
3. लाभ – फायदा
4. अधिकार – हुकूमत
5. इलाज – औषधि
6. हालत – अवस्था

4. Antonymy :-

The caretaker present a word and the patient is required to provide a word with opposite meaning. Patient first points to the appropriate picture (opposite) and then says the word.

1. दिन – रात
2. सफेद – काला
3. छोटा – बड़ा
4. अकलमन्द – बेवकूफ
5. अच्छा – बुरा
6. सच – झूठ

5. Homonymy :-

The patient should be presented with four pictures, two of which have the same word representing its meaning. E.g. जल meaning water and fire. The patient is auditorily presented with the word जल and he has to point to both water and fire.

The patient is then provided with homonyms and he has to explain both the meanings of the word. Some of the homonyms are हार, सोना, कर, मत, जल

6. Polar Questions :-

The patient should be presented with questions which require him to respond with either 'Yes' or 'No'.

1. क्या आप का नाम ____ है? (सही)
2. क्या पत्ते लाल रंग के होते है? (गलत)
3. क्या दिल्ली भारत की राजधानी है? (सही)
4. क्या सूरज रात में दिखाई देता है? (गलत)
5. क्या नमक लिटर में मिलता है? (गलत)

The patient is required to answer हा or ना; सही or गलत.

7. Semantic Anomaly :-

The patient is required to indicate whether the following sentences are meaningful or not and if it is not meaningful, why is it not meaningful and what is the correct form of the sentence.

1. सूर्य सुबह डूबता है। गलत सूर्य शाम को डूबता है। या सूर्य सुबह निकलता है।
2. गरमी मे ठंडी लगती है। गलत ठंडी मे ठंड लगती है।
3. मेरे बहन का नाम सुरेश है। गलत लडकी का नाम सुरेश नहीं हो सकता।
4. मेरा बड़ा भाई मुझ से छोटा है। गलत बड़ा भाई बड़ा हो सकता है, छोटा नहीं।

8. **Paradigmatic Relations :-**

The patient has to fill in the missing word according to the relationship the previous word pairs share.

1. शेर - जंगली ; कुत्ता ___ (पालतु)
2. मामा - मामी ; नाना ___ (नानी)
3. बिल्ली - जानवर ; तोता ___ (चिड़िया)
4. कमल - फूल ; अंगूर ___ (फल)
5. बिण्डी - सब्जी ; सेब ___ (फल)

9 Syntagmatic Relations:-

The patient has to fill in the missing word according to the relationship the previous word pairs share

1. पानी - पी ; खाना ___ (खा)
2. मछली - तैर ; चिड़िया ___ (उड़)
3. जनवरी - महिना ; सोमवार ___ दिन)
4. पुस्तक - पढ़ ; कलम ___ (लिख)
5. कुत्ता - भौंक ; गधा ___ (रेंक)

10. Semantic Contiguity:-

The patient is presented with pairs of words and he has to explain the relationship between the words. Patient is presented with four pictures of which two form word pairs.

Patient has to identify and explain the relation ship between the words.

1. रुई – कपडा रुई से कपडा बनता है।
2. लोहा – जंजीर लोहे से जंजीर बनती है।
3. बीज – पौधा बीज डालने से पौधा आता है।
4. अंडा – चिड़िया अंडे से चिडिया निकलती है।
5. ईंट – मकान ईंट से मकान बनता है।

11. Semantic Similarity :-

The patient is presented with pairs of words and he has to explain the relationship between the words.

खेल – खेलो
पढ़ो – पाठ
गाओ – गाना
खाओ – खाना

The patient is then presented with one of the words of the word pairs and he is required to provide the other word.

DISCOURSE :-

Most of the mild aphasics present with deficit in their discourse. It is at this level that their problem becomes evident. Some mild aphasic patients may not have any deficit at any other level except discourse where a gross deficit may be observed. The following is the response of description task.

"In this, _____Cow_____this woman who is there is milking the cow. This vessel which is lying with it. And man plough. These are two bullocks. He is ploughing. He, to the cock, this man who is there, is feeding seeds to the cock. There is a village, that's all. Huts etc. are there."

The patient is merely pointing out to the various characters. There is no story format. there is a lack of intrasentential cohesion and no continuity of reference.

Some of the characteristic features of mild aphasics discourse are stereotypic empty speech, lack of content, lack of intra sentential cohesion, no continuity of reference, unnecessary repetition of sentence, verbosity, word retrieval problems and lack of intonation and substance.

Hence, time should be spent in working on the discourse of the patient. The patient is required to talk about a few topics at length. The topics can be:

1. Personal information - family members, nature of job, hobbies, recreation and so on.

2. Picture description - The patient should be presented with a picture depicting a scene, and is required to talk about whatever he perceives in the picture.

DEBLOCKING FOR MILD APHASIAS AND NAMING DIFFICULTIES

The rationale of deblocking is that by stimulating the central processes of languages by any or all modalities, at least one, especially verbal expression would be facilitated.

Deblocking involves the use of a relatively unimpaired modality to deblock the impaired modality. It is a technique where an impaired function is preceded by relatively unimpaired function involving the same semantic content. This prior stimulation with an intact mode is called prestimulation phase.

Prestimulation is of three types.

1. Direct, in which the key word appears in the prestimulation phase.

2. Indirect, in which a related word, synonymy or antonymy, appears in the prestimulation phase.

3. Direct and indirect prestimulation.

If, for example, the auditory channel of the aphasic is impaired, prestimulation includes a printed word or picture representing the content to be deblocked. The deblocking technique can be used in all types and degrees of aphasia.

To Deblock Naming :-

I. Reading to Deblock Naming :-

Direct prestimulation: Here the written or printed key word is presented to the patient. E.g. आम, ताला, दरवाजा

The caretaker presents the picture of आम and the patient is required to read as well as see the picture and say आम

Indirect deblocking : Here the key word is not directly presented to the patient. Instead semantically related words are used. E.g. written or printed sentence यह फल है, the caretaker then presents the picture of आम . The patient is required to read the. sentence and then see the picture and say. आम

A few more examples using reading to deblock naming.

Prestimulation	Stimulus Presented by caretaker	Patients response
I. Direct :		
Written or printed words	Pictures	
a. दरवाजा	दरवाजा	Says दरवाजा
b. कान	कान	" कान
c. गुलाब	गुलाब	" गुलाब
d. लाल	लाल	" लाल
e. हवाईजहाज	हवाईजहाज	" हवाईजहाज

II. Indirect :

Written or printed sentence	Pictures		
a. इस से हम घर के अंदर आते हैं।	दरवाजा।	Says	दरवाजा
b. शरीर के इस भाग से हम सुनते हैं।	कान	"	कान
c. यह फल है।	गुलाब	"	गुलाब
d. यह रंग है।	लाल	"	लाल
e. यह आकाश मे उड़ने वाला जहाज है।	हवाईजहाज	"	हवाईजहाज

II. Auditory Mode to Deblock Naming :-

Direct prestimulation : Here the caretaker auditorily presents the key word to the patient. The caretaker then presents the picture and the patient is required to name it.

Indirect prestimulation : Here the caretaker auditorily presents semantically related words. The picture is then presented and the patient is required to name it.

Example

Prestimulation	Stimulus Presented by caretaker	Patient's response
I. Direct :		
Auditory stimulation घर	Picture of घर	Says घर
II. Indirect :		
Auditory stimulation हम इस मे रहते हैं।	Picture of घर	Says घर

III. Tactile Mode to Deblock Naming :-

Direct prestimulation :Here the caretaker presents the real object to the patient to feel it. The caretaker then presents the picture of the object and the patient is required to name it. For example, the patient feels the pen with his hands, the caretaker then presents the picture of the pen and the patient is required to name it 'pen'.

IV. A combination of tactile, visual, graphic and auditory mode can be used to deblock naming. During the course of therapy, those modalities are withdrawn in which the patient performs well, and the patient is encouraged to respond to only one stimulus.

Cues to Facilitate Naming :-

Cues can be given to patient to facilitate naming. Some of the cues which can be given are :-

1. Semantic Cues :- The patient can be provided with a short definition or the features of the word in order to facilitate the production of the correct word.

E.g. Part of the body through which we see- 'Eye's'. Color of our hair - 'Black.

Another cue would include presentation of a single word to the patient and he/she is required to list semantic features or given a short definition.

E.g. Aeroplane - 'Vehicle', 'Flies', etc.,

Horse - Animal, domestic, etc.,

2. Phonetwic Cues :- The patient can be provided with the first phoneme (Sound) of the word to facilitate naming.

3. Carrier Phrase :- The patient can be provided with a carrier phrase like "The name of the animal is_____", "The name of the fruit is_____, etc.,

Other cues to facilitate naming are :-

1. Antonyms and synonyms of the word to facilitate the naming of the correct word.

2. The first element in a compound word can be presented to the patient and the patient is required to complete the word, e.g. Sun flower

3. Categories : The patient is provided with the category to which the word belongs and the patient is required to name the word.

E.g. Category 'Clothes'

Word 'Shirt'.

4. Paradigms : The patient is provided with an incomplete sentence with the omitted element being the lexical word. The patient is required to provide the correct word.

Eg. I live in_____(Palace, house, farm).

CONCLUSION

The Home Training Program is for the family of those aphasics who cannot avail the facilities of regular therapy at rehabilitation centres. Though the therapy techniques and activities chosen are such that no specific training is required, it cannot be handed over directly to the family.

The therapist has to evaluate the aphasic using any of the standardized test batteries and should introduce the program in stages. The appropriate therapy with the appropriate hierarchy of items should be selected for each individual patient. It is possible that during the course of therapy the patient may progress from one therapy program to another. The therapist should be flexible and make the necessary changes in the program. This requires monitoring and reassessment of the patient every forthright.

Monitoring the patient is required for two main purposes - one, to note the progcess----- so that further materials and activities can be developed depending on the patients needs; second, to see that the home training is carried out regularly at home. It is often observed that home training programs are usually not followed to the core unless monitored regularly.

The family members should be given guidelines on how to carry out the program at home. They should also be given instructions in writing with examples for each activity and encouraged to develop their own materials with additional activities depending on the aphasics need to communicate.

SUMMARY

A Home training kit has been developed for those aphasics who cannot attend therapy regularly due to some reason. The Home training kit is for the family, but to be used under the supervision of a qualified professional. The kit is not to be handed over to the family directly; instead the program has to be introduced in stages. The therapist assesses the patient, rates him as mild, moderate or severe and selects the appropriate therapy program depending on the degree of aphasia. Only after a detailed evaluation, does the clinician know which sections of the therapy program are to be given as home training. Regular monitoring is essential for the home training to be effective. The patient, thus, gets the benefit of therapy without having to strain himself to reach rehabilitation centres.

For a successful home training, sincere co-operation, devotion, motivation and a desire to improve on the part of the patient and family is essential.

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