

Twenty-five years of the Spanish Journal of Nuclear Medicine. Bibliometric study

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Abstract.—*Objective.* To analyze the scientific content of the Revista Española de Medicina Nuclear (REM N) after twenty-five years of publication.

Material and methods. From 1,181 published articles it has been extracted: name and surnames of the first author, Hospital and Autonomous Region, year of publication, topic of the study and section of the journal.

The following information has been obtained: n.º of publications and original articles for author, Hospital, Autonomous Community and Country, globally and per period.

For the introduction and analysis of the information the programs Access and Excel have been used.

Results. The original articles constitute 40 % (473/1181) of the publications being the section Original that of major content from the beginning except in the period 1987-91 where Special Collaborations were published for the most part. The topics more frequently treated were oncology (11.4 %), cardiology (10.7 %), osteoarticular (9.8 %) and radioinmunoassays (8.9 %). The oncological topics have occupied the interest of the majority of the publications in the last decade, emphasizing in the last five years the studies with technology PET. Have been published 146 manuscripts proceeding from 24 foreign, principally Spanish-speaking countries and preferably original articles (83/146). With relation to the Spanish articles we observe that the regions of Madrid and Cataluña are the most productive (47%) from the beginning of the REM N being the Hospitals Lozano Blesa of Zaragoza, Bellvitge and Clinic of Barcelona the centres with more published articles.

Conclusions. After twenty-five years, the REM N has been consolidated as scientific journal of reference in the Nuclear Medicine specially in Spanish language. The incorporation in Medline/Index Medicus supposed an increase in the original published manuscripts.

KEY WORDS: Nuclear medicine, bibliometrics, periodicals.

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VEINTICINCO AÑOS DE LA REVISTA ESPAÑOLA DE MEDICINA NUCLEAR. ESTUDIO BIBLIOMÉTRICO

Resumen.—*Objetivo.* Analizar el contenido científico de la Revista Española de Medicina Nuclear (REM N) tras 25 años de publicación.

Material y métodos. De 1.181 artículos publicados se ha extraído: nombre y apellidos del primer autor, hospital y Comunidad Autónoma, año de publicación, tema del estudio y sección de la revista.

Se han obtenido los siguientes datos: número de publicaciones y originales por autor, hospital, Comunidad Autónoma y país de origen, globalmente y por lustro.

Para la introducción y análisis de los datos se han usado los programas Access y Excel.

Resultados. Los artículos originales constituyen el 40% (473/1.181) de las publicaciones, siendo la sección Original la de mayor contenido desde el inicio salvo en el período 1987-1991, donde se publicaron mayoritariamente colaboraciones especiales. Los temas más frecuentemente tratados fueron Oncología (11,4 %), Cardiología (10,7 %), Osteoarticular (9,8 %) y Radioinmunoanálisis (8,9 %). Los temas oncológicos han ocupado el interés de la mayoría de las publicaciones en la última década, destacando en los últimos 5 años los estudios con tecnología de tomografía por emisión de positrones.

Se han publicado 146 manuscritos procedentes de 24 países extranjeros, principalmente de habla hispana, y preferentemente artículos originales (83/146).

Con relación a los artículos españoles observamos que las Comunidades de Madrid y Cataluña son las más productivas (47 %) desde el inicio de la REM N, siendo los Hospitales Lozano Blesa de Zaragoza, Bellvitge y Clinic de Barcelona los centros con más artículos publicados.

Conclusiones. Tras 25 años la REM N se ha consolidado como revista científica de referencia en el área de la Medicina Nuclear, especialmente en lengua española. La inclusión en Medline/Index Medicus supuso un incremento en los manuscritos originales publicados.

PALABRAS CLAVE: Medicina nuclear, bibliometría, publicaciones periódicas.

INTRODUCTION

The Spanish Journal of Nuclear Medicine (REM N) was founded on May 14, 1982. Before that, a Bulletin of Nuclear Medicine had been published, two issues

in 1977, as the organ of expression of the Spanish Society of Nuclear medicine (SEMN) and of the Spanish Society of Nuclear Medicine and Biology. Subsequently, informative circulars were published by the SEMN (two in 1979, two in 1980, three in 1981 and one in 1982) with a view to disseminating Nuclear Medicine activities in Spain, original research, working methodology, as well as other documents of interest.

The REMN is available on the Internet at the web site of the Doyma Elsevier publishers (www.doyma.es/revistas/), and can also be accessed through the website of the SEMN (www.semn.es), where all work published since January 1998 can be viewed.

Its commitment to the requirements of uniformity for manuscripts presented to biomedical journals, its external review system and updated publication have led the REMN to be indexed in the main bibliographic data bases in Health Sciences (Index Medicus/Medline, Embase/Excerpta Medica, Índice Médico Español and Índice Bibliográfico Español en Ciencias de la Salud).

Its current circulation is 1,200 copies of each one of the 7 issues that make up each volume (6 ordinary numbers and a special), and it is distributed to the members of the Spanish Society of Nuclear Medicine and its individual and institutional subscribers.

The REMN supports the publication of the proceedings of the National Congress of Nuclear Medicine and other meetings of similar Scientific Societies.

Bibliometric studies were introduced in Spain by López Piñero and Terrada^{1,2} since then they have been carried out on different biomedical magazines.³⁻⁷ In 2002, Arias et al published the only bibliometric study on the REMN performed to date.⁸ This work, which comprised the 1991-2000 period, studied the topics of the articles, techniques used, type of articles, number of authors, source Autonomous Community, country, number of pages and number of references.

This article will analyse the main characteristics of the REMN from the standpoint of bibliometric analysis. The objective of our work is to characterise the journal on the basis of the articles published in it over 25 years, from 1982 to 2006, assessing the topics published and their evolution over time, the type of work published, authors with most publications, hospitals with greatest number of publications, and the Spanish Autonomous Communities and countries from which the work published in our journal comes.

MATERIAL AND METHODS

The material studied is all the articles published in the REMN between May 1982 and December 2006 in the different sections of the Journal: Originals, Clinical Notes, Reports, Continuing Education, Collaborations, Letters to the Director and Images of interest. The abstracts or proceedings of scientific communications at congresses have not been included.

The following information was extracted from each publication: first name and surnames of the first author, hospital where the work was performed, Autonomous Community, year of publication and main subject matter of the study.

The following data were calculated: number of publications and original articles by author, number of original publications and articles by hospital, number of publications and original articles by Autonomous Community and number of publications and original articles by countries. These data were calculated globally and were distributed by periods of time.

The Access and Excel programs were used for data input and analysis.

RESULTS

Between May 1982 and December 2006, both included, 1,181 articles were published in the REMN in 121 ordinary issues and 18 specials, with the number of annual pages increasing progressively, totalling 9,493 pages over this 25-year period (table 1).

Types of articles

Of these 1,181 articles, the most numerous group was original articles, with 473 (40.1%). The rest of the works that were published are distributed over clinical notes (15.6%), collaborations (14.5%), Editorials (8.2%), Images of interest (7.6%), Continuing Education (5.4%), Reports (4.1%), Letters to the Director (4.1%) and Opinion articles (0.4%) (table 2).

From the outset, in 1982, the Journal has contained the Editorial, Original, Clinical Notes and Collaboration sections. The sections on Letters to the Director (1996), Continuing Education (1992), Reports (1993), Images of Interest (1986) and more recently Opinion and debate (2005), were added gradually.

Table 1
SPANISH JOURNAL OF NUCLEAR MEDICINE 1982-2006

	No. Pages	No. Ordinary	No. Special	Total articles
1982-86	1,063	14	1	121
1987-91	1,425	15	13	172
1992-96	1,934	30	1	229
1997-01	2,525	32		330
2002-06	2,546	30	3	329
Total	9,493	121	18	1,181

Between 1993 and 2003, the summaries of congresses are included in ordinary issues.

Table 2
SPANISH JOURNAL OF NUCLEAR MEDICINE 1982-2006

	1982-86	1987-91	1992-96	1997-01	2002-06	Total no.	Total %
Opinion					5	5	0.4
Report			15	25	9	49	4.1
Continuing Education			21	27	16	64	5.4
Images of interest			4	28	58	90	7.6
Letters to the Director	1	10	8	18	11	48	4.1
Editorial	3	21	22	24	27	97	8.2
Collaboration	9	83	39	19	21	171	14.5
Clinical Note	19	20	33	55	57	184	15.6
Original	89	38	87	134	125	473	40.1
Total	121	172	229	330	329	1,181	(100)

The Original articles section has remained the largest over time, barring the 1987-1991 period, in which there was a tendency in the journal to publish mainly special collaborations (48% of the collaborations published over the 25 years and 47% of the total articles published in this five-year period).

There was an outstanding increase in Images of interest once this section was added to the journal: twenty-eight (28) were published in the 1997-2001 period, and 58 works in the following five years (table 2).

Topics published

The topics most frequently addressed in the Journal are Oncology (11.4%), Cardiology (10.7), Osteoarticular Condition (9.8%) and Radioimmunoassay (RIA) (8.9%), which, together with articles on the positron emission tomography (PET) and digestive areas account for more than half the work published over these years (table 3).

Analysing the evolution of the main study topics, we can see how there has been a notable reduction in RIA, with only 5 articles in the three last years. Articles based on cardiology peaked between 1997 and 2001. Clearly, cancer topics have been the most published

articles in the last decade, to which the inclusion of articles with PET methodology should be added (57 in the last five years) (table 3).

Four hundred and seventy-three (473) original articles have been published in these years, most of them (50.2%) pertaining to topics in the area of Cardiology, the most frequent overall, plus RIA, Oncology and Digestive. We can see how the number of original articles in the area of oncology has increased over time, and which, in the last 5 years, together with PET, account for 32% of the total; those pertaining to neurology have also increased, whereas originals on cardiology and RIA have fallen (table 4).

On analysing the articles published in other sections of the REMN, we see how some are predominant (table 5). The main topic of the Letters to the Director has been RIA (50% of the total). In Special Collaborations, the main subjects have been cardiology and osteoarticular (18% and 16%). Editorials have preferably addressed institutional matters related to professional aspects, the REMN itself and other Scientific Societies. While Continuing Education has included all the clinical areas of the speciality, the most recurring topics are those related to PET (16%), Nephrology (12.5%) and Oncology (12.5%). In the

Table 3
MAIN TOPICS PUBLISHED PER FIVE-YEAR PERIOD

	1982-86	1987-91	1992-96	1997-01	2002-06	Total no. (%)
Oncology	2	5	15	59	54	135 (11.4)
Cardiology	20	29	24	34	19	126 (10.7)
Bone	9	36	12	24	35	116 (9.8)
RIA	25	17	16	31	17	106 (8.9)
Digestive	15	20	23	16	11	85 (7.2)
PET	–	–	2	17	57	76 (6.4)
Neurology	6	4	25	14	24	73 (6.2)
Radiopharmacy	6	8	25	20	12	71 (6.0)
Nephrology	9	14	14	13	16	66 (5.6)
Endocrinology	9	6	10	21	16	62 (5.2)
Therapeutics	1	5	2	13	14	35 (2.9)
Instrumentation	3	4	11	7	7	32 (2.7)
Haematology	7	5	1	7	–	20 (1.7)

RIA: Radioimmunoassay; PET: positron emission tomography.

Table 4
MAIN TOPICS PUBLISHED IN ORIGINAL ARTICLES

	1982-86	1987-91	1992-96	1997-01	2002-06	Total no. (%)
Cardiology	16	4	15	28	11	74 (15.6)
RIA	20	6	10	17	12	65 (13.7)
Oncology	1	1	5	27	27	61 (12.7)
Digestive	13	6	10	5	5	39 (8.2)
Radiopharmacy	3	7	8	10	7	35 (7.4)
Nephrology	8	5	7	7	8	35 (7.4)
Neurology	3	0	9	4	14	30 (6.3)
Endocrinology	5	2	6	8	6	27 (5.7)
Infectious	2	1	5	6	4	18 (3.8)
Bone	6	3	4	1	2	16 (3.3)
Instrumentation	2	0	2	6	5	15 (3.1)
PET	0	0	0	2	13	15 (3.1)
Pneumology	2	1	3	3	6	15 (3.1)
Haematology	6	2	0	5	0	13 (2.7)
Therapeutics	1	0	0	4	4	9 (1.9)

RIA: Radioimmunoassay; PET: positron emission tomography.

Images of interest section, particular mention should be made of publications on osteoarticular condition (30%). In the Reports section, particular importance is enjoyed by standard operating procedures and radiopharmaceutical guides, which account for 60%. Several topics have been published as Clinical Notes: Digestive, Endocrinology, Infectious and Neurology, although special mention must be made of those pertaining to the Osteoarticular System (21%) and Oncology (18%).

Source of the articles

The analysis of the distribution of publications by geographical source shows 146 articles from

institutions from 24 foreign countries (12%), mainly from Spanish nations such as Cuba, Argentina and Chile (40% of the total). Most of these publications are original articles (83/146) (table 6).

Over these 23 years 1,035 national works have been published in our Journal, 103 of them manuscripts from national institutions (Ministry of Health, SEMN, etc.) and the rest (932 works) come from 16 Autonomous Communities. The distribution by Autonomous Communities is shown in table 7. The maximum values correspond to Madrid (24%) and Catalonia (23%), both with a similar number of original articles (Madrid 89 and Catalonia 91), and these data have remained unchanged in the by time segment analysis (table 7).

Table 5
TOPICS PUBLISHED IN THE DIFFERENT SECTIONS OF THE JOURNAL

	<i>Editorial</i>	<i>Original</i>	<i>Clinical Note</i>	<i>Images of interest</i>	<i>Special Collaboration</i>	<i>Continuing Education</i>	<i>Report</i>	<i>Opinion and Debate</i>	<i>Letter to the Director</i>	<i>Total</i>
Cardiology	6	74	8	–	31	3	1	2	1	126
Digestive	2	39	23	6	9	5	–	–	1	85
Endocrinology	3	27	22	4	2	2	1	–	1	62
Haematology	–	13	4	–	1	1	1	–	–	20
Infectious	–	18	14	13	–	1	–	–	–	46
Instrumentation	1	15	–	–	15	1	–	–	–	32
Nephrology	1	35	5	2	13	8	–	–	2	66
Pneumology	–	15	6	1	5	3	1	–	2	33
Neurology	2	30	12	5	15	7	2	–	–	73
Oncology	7	61	34	11	9	8	1	2	2	135
Osteoarticular	3	16	38	27	27	3	–	–	2	116
PET	5	15	14	18	7	10	4	1	2	76
Radiopharmacy	4	35	2	–	8	3	11	–	8	71
RIA	2	65	–	–	14	–	1	–	24	106
Radioprotection	–	5	–	–	–	1	1	–	–	7
Therapeutics	–	9	2	3	10	6	4	–	1	35
Non-clinical topics	61	1	–	–	5	2	20	–	2	91
Total	97	473	184	90	171	64	48	5	48	1,180

PET: positron emission tomography; RIA: Radioimmunoassay.

Table 6
SOURCE OF FOREIGN PUBLICATIONS

<i>Country</i>	<i>Original</i>	<i>Clinical Note</i>	<i>Collaboration</i>	<i>Image</i>	<i>Total no.(%)</i>
Cuba	32	2	1	–	42 (28.7)
Argentina	12	1	1	–	14 (9.5)
Chile	10	3	–	–	13 (8.9)
Portugal	6	–	–	3	9 (6.1)
Turkey	3	4	–	1	8 (5.4)
United Kingdom	–	–	2	1	7 (4.7)
Uruguay	4	3	–	–	7 (4.7)
Austria	4	1	–	1	6 (4.1)
Germany	1	–	3	1	5 (3.4)
Brazil	4	–	–	–	5 (3.4)
USA.	2	1	2	–	5 (3.4)
General total	83	18	18	11	146 (100)

The national publications come from 79 centres; table 8 details the hospitals that have published more than 15 articles or more than 10 original articles. The Hospital Lozano Blesa de Zaragoza is the most productive, with 87 publications, followed by the Catalan hospitals Bellvitge (64) and the Clínic de Barcelona (59). If we analyse the number of original articles by centre, we can see that the Hospital de Bellvitge, with 36 original works, and the Hospital Lozano Blesa, with 34, lead the classification. If we calculate in each hospital the proportion of original articles with regard to the total, the greatest proportion corresponds to the Hospital Clínic, San Cecilio de

Granada (77%) and the Hospital General de Ciudad Real (64%) (table 8).

Table 9 shows the hospital centres with the greatest number of original articles in each time period.

Finally, the 8 authors that have published more than 5 original articles as first author are presented (table 10).

DISCUSSION

Bibliometric studies provide useful data for characterising the scientific output of a journal, professional groups, research areas or a country. In

Table 7
DISTRIBUTION OF PUBLICATIONS AND ORIGINAL ARTICLES BY AUTONOMOUS COMMUNITY

Community	1982-86	1987-91	1992-96	1997-01	2002-06	Publications	Original articles
Andalusia	13	18	21	23	46	121	51
Aragon	18	10	23	21	20	92	37
Asturias	–	5	4	8	7	24	9
Balearics	7	1	5	5	3	21	9
C. Valencia	1	–	5	39	19	64	24
Canary Islands	2	–	2	1	2	7	3
Cantabria	1	8	6	18	8	41	17
Castile – La Mancha	–	–	3	7	12	22	14
Castile Leon	8	2	3	1	1	15	10
Catalonia	24	43	33	53	63	216	91
Extremadura	–	–	–	1	3	4	1
Galicia	2	5	–	2	13	22	9
Madrid	38	48	34	51	52	223	89
Murcia	2	3	1	6	4	16	9
Navarra	1	3	11	9	4	28	12
Basque Country	1	1	–	6	7	15	3
Institutional	2	11	31	37	22	103	2
Total	120	158	182	288	286	1,035	390

Table 8

SPANISH HOSPITALS WITH MORE THAN 15 PUBLICATIONS AND/OR 10 ORIGINAL ARTICLES

Hospitals	Publications	Original articles
H. Lozano Blesa	87	34
H.U. Bellvitge	64	36
H. Clínic Barcelona	59	26
H.U. Marqués de Valdecilla	41	17
H.U. Vall d'Hebrón	40	15
H. Clínic Madrid	37	17
H.U. Reina Sofía	33	10
H.U. Puerta de Hierro	32	16
F. Jiménez Díaz	32	13
H.U. Virgen del Rocío	30	14
H. Sant Pau	28	10
H.U. La Fe	25	9
C.U. de Navarra	24	10
H.U. Gregorio Marañón	22	13
H. General Ciudad Real	22	14
H. Son Dureta	21	9
H. Central de Asturias	21	8
H.U. Ramón y Cajal	19	4
H.U. Virgen de la Arrixaca	16	9
H. San Cecilio	13	10

the field of health sciences, the primary endpoint is frequently to analyse a periodical publication, a speciality or a subject.

An original article was published in the REMN, presenting a descriptive analysis of the articles

published in the journal over the 1991-2000 ten-year period. This work concluded that there seemed to be a quantitative increase in the REMN's scientific output.⁸

This article has sought to update the data from the perspective of 25 years of ongoing publication of our Journal.

Although 1,181 articles published in 25 years might indicate a low scientific output in comparison with other Spanish medical journals, this may be accounted for by the dimension and the years of existence of Nuclear Medicine in our country.

Since 1991, the Journal has consolidated its position as a quarterly publication, with a proportional increase in the number of pages to the figure of 2,546 in the last five years, more than 500 pages a year.

One noteworthy aspect is the proportion of original articles with regard to the total manuscripts (40%), which matches that of other specialised magazines.^{5,9}

The presence of originals is constant, since no year has ever transpired without the publication of an article, although the number did fall in the 1987-1991 period.

The number of originals published increased significantly as of 1997, coinciding with the inclusion of the REMN in the Index Medicus/Medline data base.¹⁰

Table 9

CHRONOLOGICAL DISTRIBUTION OF HOSPITALS WITH MOST ORIGINAL ARTICLES PUBLISHED

1982-1986		1987-1991		1992-1996		1997-2001		2002-2006	
H. Lozano Blesa	12	H. Marqués Valdecilla	4	H. Lozano Blesa	7	H. Bellvitge	11	H. Bellvitge	12
H. Puerta de Hierro	10	H. Lozano Blesa	3	H. Bellvitge	6	H. Lozano Blesa	9	H. G. Ciudad Real	10
H. Clínico Madrid	10	H. U. Bellvitge	3	H. Clínic Barcelona	5	H. Clínic Barcelona	8	H. Clínic Barcelona	7
H. U. Salamanca	6	H. C. San Cecilio	3	H. Clínico Madrid	3	H. Gregorio Marañón	8	H. Virgen de la Victoria	5
H. Vall d'Hebron	6	H. Reina Sofia	3	H. Gregorio Marañón	3	H. Marqués Valdecilla	7	H. Virgen del Rocío	5
H. Son Dureta	5			C. U. Navarra	3	C. U. Navarra	6	F. Jiménez Díaz	5
H. Virgen del Rocío	5			H. Marqués Valdecilla	3	H. Virgen de la Arrixaca	6		

The active editorial policy undertaken since 1992 rendered it possible to diversify the scientific contents of the journal with the inclusion of new permanent sections: Images of interest, Continuing Education, Reports and subsequently the Opinion and Debate section.

In the 1987-1991 period, almost 50% of the articles correspond to Collaborations, possibly due to the 13 special issues published about scientific meetings, special issues, etc.

Since it was conceived, the Images of interest section have received growing attention, which is logical in a speciality that has brought in new technologies that have had an ostensible impact on imaging diagnosis.

Oncology has been most frequently studied in our journal, since together with the PET-related articles they both account for 17% of the total. Although cancer was not originally a preponderant condition, as it became more prevalent in the population, and due to the development of advanced technology in this field, it has gradually accounted for approximately one third of all work published and original articles in the last 5 years.

The second topic of interest has been cardiovascular disease, which has maintained a constant frequency of articles over the years, although the last few years have witnessed a slight reduction in manuscripts, perhaps due to the absence of significant new developments in this area. It should be mentioned that most of the publications related to cardiology pertain to the Original articles section, mirroring the quality of the research and of the implementation of Nuclear Medicine procedures in healthcare to patients with coronary disease.

The study of the osteoarticular condition has traditionally been a source of numerous publications, 116 in total, although only 14% are original articles. Most of the work revised is based on individual cases

Table 10

LIST OF AUTHORS THAT HAVE PUBLISHED MORE THAN 5 ORIGINAL ARTICLES AS FIRST AUTHOR

Ruibal Morell A	15
Banzo Marraco J	10
Banzo Marraco I	7
Ortega Valle A	7
Prats Rivera E	7
Jiménez-Hoyuela JM	6
Mulero Anioarte F	6
Peñañel Ramírez A	6

either by the characteristics of the actual disease, the particularity of scanning technology imaging, and is published in the Clinical Notes and Images of interest sections.

Finally, more than 100 works have been published on RIA, and 60% of such work is presented as original articles. Despite the growing number of Nuclear Medicine Departments without an RIA unit, and even the loss of this technology in others, in the last five years, 2002-2006, 12 original articles have been published, a similar figure to PET articles,¹³ and more than in cardiology, which points to a good level of scientific output in the Departments that have kept on the RIA lab.

If we analyse the topics studied in the original articles we can see how Cardiology has been the most frequent overall, although oncological studies have predominated in recent years, followed by Neurology articles, probably with regard to the latest technological breakthroughs, both in imaging techniques and in the development of new radiolabelled drugs targeting these areas.

It must be remembered that each article has only been assigned a main topic, which may lead to a bias in the assessment of frequency.

The higher frequency of articles from Spain and Latin America occurred between 1992 and 1996, produced by the fact that the REMN was also the vehicle of expression of the Latin American Association of Biology and Nuclear Medicine (ALASBIMN). On the other hand, publications from other countries increased as of 1997, due to the greater visibility of the Journal thanks to its inclusion in Medline, and the web-based edition.

The high proportion of original articles from Latin America centres, 73 of 95 works, is particularly striking, promoted by the fact that our Journal is a reference publication in Spanish language. On the other hand, non Spanish-speaking authors prefer Special Collaborations.

The REMN has served as an instrument for the dissemination of scientific and professional regulations and reports drawn up by the SEMN and its workgroups, the Ministry of Health and the Council of Nuclear Safety, which has meant the publication of 103 works, preferably in the Editorials and Reports sections.

Articles have been published from all the Autonomous Communities, except La Rioja. As in the revision published in 2002,⁸ Madrid and Catalonia are still the main source of work overall, accounting for approximately half of all documents (47%). If we add to this the scientific output of the Communities of Andalusia and Valencia, we obtain 59% of all the Spanish manuscripts collected in the study, thus maintaining their preponderance in recent years (table 7); data similar to those published on biomedical scientific output in Spain^{9,11} and which may be accounted for by the existence of a greater number of Nuclear Medicine Units in these Autonomous Communities.

We will leave it up to the readers to interpret the data on their own Community over the years in which the REMN has been published (table 7).

In a more detailed analysis, one centre from Aragon, the Lozano Blesa University Hospital of Zaragoza, stands out by virtue of its greater scientific contribution (87 publications) since the creation of the Journal. This hospital, together with the Hospital Bellvitge de Barcelona, publishes the highest number of original articles, and what is more important, both have maintained their high scientific output over these 25 years. Some specific events include the contribution of originals in recent years by the Hospital General de Ciudad Real, and the reduction in those from hospitals of the Community of Madrid.

Finally, we would like to mention the investigators that have published most original articles in the Journal as first author. The publication of a scientific article is the work of a multidisciplinary team whose leader is the first author of the manuscript.

CONCLUSIONS

We may safely say, after 25 years, that the REMN is a consolidated scientific publication in the field of imaging diagnosis. In the last ten years, the inclusion of the journal on the Index Medicus/Medline has led to an increase in original manuscripts. In the near future, achieving the priority objective of acceptance by Thomson-ISI to become part of the *Journal Citation Reports* would increase its international projection and would lead to a substantial improvement in quality.

The development and implementation of the new technologies in all Nuclear Medicine Departments could promote greater diversity in the source of work submitted, while also making it possible to update new areas of research.

A more in-depth bibliometric study would make it possible to detail scientific activity in the field of Nuclear Medicine, analysing productivity and impact indexes, as well as the analysis of coauthorships and institutional collaborations.

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