

Special Feature

Bibliometric analysis of the scientific productivity of the Italian Society of Nephrology for a period of five consecutive years (1990–1994)

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There is a widespread assumption that a scientific society achieves a leading role in international medicine when high output research activity is realized by articles published in leading journals. We reviewed medical publications by the members of the Italian Society of Nephrology for a period of five consecutive years, from 1990 to 1994, with the aid of an on-line MEDLINE. For larger, aggregated data, weighted citation count is laborious and intensive; for this reason we considered the impact factor (IF) given to the journals for the year of publication. A publication count gives the total volume of research output, but it provides no indication as to the quality of the work performed; for this reason the total amount of IF and its mean were considered. Table 1 shows the total number of publications per year, the sum of the IF of the journals in which papers produced by Italian renal units were published, and the mean of IF.

It is evident that the rate of publications per year, as well as the total IF, showed small fluctuation over the years, while the mean IF per year improved, thus showing that the scientific activity of the society increased in quality even though reducing the number of publications.

Since different specialities exhibit different ranges of peak IF, we divided papers into two groups, according to publication in nephrology or non-nephrology journals. Table 2 shows the total number of papers published in different nephrology peer-reviewed journals. Most of the Italian papers were published in three journals: *Nephron* (135), *Nephrology Dialysis Transplantation* (98) and *Kidney International* (77). If

we consider the total number of papers published in these three journals during the period of observation (Fig. 1), it is seen that there was a decreasing number of papers appearing in *Nephron*, an increasing rate of papers being published in *Nephrology Dialysis Transplantation* and a steady state rate in *Kidney International*. Only 11 papers were published in the highest ranked nephrology journal (*Journal of the American Society of Nephrology*), but we considered only the Italian papers published in the journal after it was ranked in the *Journal Citation Reports*, in the year 1992.

Finally, we considered papers published in non-nephrology peer-reviewed journals. Table 3 indicates that a large number of papers appeared in journals with a high IF, thus demonstrating that Italian nephrologists are also strongly interested in basic science and clinical studies.

A reasonable degree of correlation between publication counts and other measures of scientific merit, such as funding and peer ranking, has been shown. In fact,

Table 2. Total number of papers published in peer-reviewed nephrology journals

Journal	No.
<i>Nephron</i>	135
<i>Nephrol. Dial. Transplant.</i>	98
<i>Kidney Int.</i>	77
<i>Clin. Nephrol.</i>	40
<i>Am. J. Kidney Dis.</i>	37
<i>Int. J. Artif. Organs</i>	37
<i>Am. J. Nephrol.</i>	31
<i>Transplant. Proc.</i>	18
<i>Pediatr. Nephrol.</i>	16
<i>Am. J. Physiol.</i>	15
<i>Transplantation</i>	15
<i>Perit. Dial. Int.</i>	14
<i>Blood Purif.</i>	12
<i>J. Am. Soc. Nephrol.*</i>	11
<i>Child. Nephrol. Urol.</i>	11
<i>Renal Failure</i>	9
<i>Artif. Organs</i>	7
<i>Semin. Nephrol.</i>	1

*Papers published in the years 1990 and 1991 were not included.

Table 1. Total number of publications per year in peer-reviewed journals

Year	No. of papers	Total IF	IF (mean)
1990	172	471.168	2.739
1991	173	447.902	2.589
1992	232	567.256	2.445
1993	210	520.992	2.480
1994	174	485.724	2.791
Total	961	2493.042	2.594

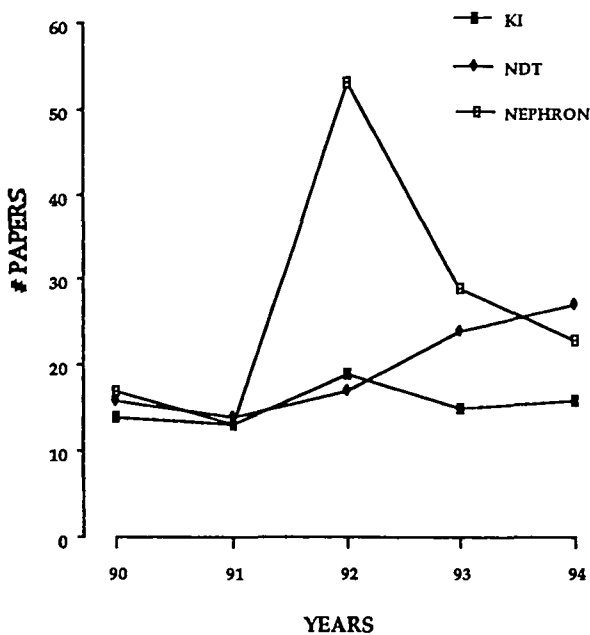


Fig. 1. Total number of papers published during the period of observation for *Nephron*, *NDT*, and *Kidney International*.

a correlation of 0.95 was found between the amount of National Institutes of Health (NIH) funds received and the number of biomedical publications produced 2 years later by 120 medical schools [1]. These data are not encouraging for Italian nephrologists and researchers, since Italy during the years of observation spent only 1.3% of its gross domestic product (GDP) on research and development [2]. The adjusted GDP per head in 1990 was US \$ 20 300, compared with other European countries such as Switzerland (US \$ 35 810), Germany (US \$ 25 500) and France (US \$ 22 350). Only the UK spent less than Italy, exactly US \$ 17 710 [3]. To increase this share we suggest promoting tax incentives (for example 150% reduction for companies), which would increase research and development expenditure (for example by 10%).

In conclusion, our survey shows that nephrology research in Italy has improved during the past five

Table 3. Total number of papers published in peer-reviewed non-nephrology journals

Journals	No.
<i>Lancet*</i>	21
<i>Clin. Sci.</i>	16
<i>Lab. Invest.</i>	13
<i>Am. J. Hypertens.</i>	9
<i>J. Clin. Invest.</i>	8
<i>Acta Diabetol.</i>	6
<i>N. Engl. J. Med.</i>	6
<i>Clin. Exp. Immunol.</i>	5
<i>Clin. Immunol. Immunopathol.</i>	4
<i>Am. J. Med.</i>	4
<i>J. Exp. Med.</i>	3
<i>J. Lab. Clin. Med.</i>	3
<i>J. Immunol.</i>	6
<i>Am. J. Pathol.</i>	2
<i>Ann. Intern. Med.</i>	2
<i>Proc. Natl. Acad. Sci. USA</i>	1

*Nine letters were included.

years and is in good shape, even though our government spends a low percentage of its GDP on research and development. Proposals to increase this share should be taken into consideration.

References

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P.S.

The Editor-in-chief suffers from advanced Italianophilia and, being an honorary member of the Italian Society, he welcomes the high scientific output of Italian nephrology. Such sophisticated self-assessment provides an example which should be followed by other national societies as well.

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