Letter

Better recognition of orthopedics, traumatology and sports medicine in the system of journal ranking

Sir—During recent years, there has been an increasing international interest in ranking the scientific journals by one simple annual measure, so that the journals can be classified both within each subject category (for example, within each medical specialty) and across categories (between specialties). The reasons for doing so have been obvious: the journals are competing with one another, as also do the scientists, and one simple annual measure would tell which journal is "good" and which is "bad", and who gets his or her studies published in highly-ranked journals and who does not. These comparisons are then made when people apply for grants and academic positions.

For reasons entirely unknown to us, and definitely without any greater discussions, the so-called Impact Factor (IF) of the Science Citation Index (SCI) has become such a "miracle" score, according to which the scientific journals (and therefore their quality) are currently ranked. By definition, the IF means how many times (on average) during the study year the articles that appeared in the 2 preceding volumes (years) of the index journal were cited in the other SCI-indexed journals. In other words, the IF factor tells us, for example, how many times an average Acta Orthopaedica Scandinavica article published in 1992 and 1993 received citations in the other SCI-indexed journals in 1994. Acta Orthopaedica Scandinavica, which is definitely one of the leading journals in the world of orthopedics and traumatology, had an IF of 0.7 in 1995.

Using the above-described method for journal ranking, we can easily find that all journals in the field of orthopedics, traumatology and sports medicine are doing very poorly in comparison with other branches of medicine and the basic science journals. For example, the 1995 IFs of the JBJS (Am), JBJS (Br), Acta Orthop Scand, Clin Orthop and Am J Sports Med were very low (1.6, 1.2, 0.7, 0.7 and 0.6), as compared to those of surgery (Ann Surg 4.4, Arch Surg 2.3, Surgery 2.1, Am J Surgery 2.0) and internal medicine (Ann Intern Med 10, Circulation 9, Diabetes 6, Arch Intern Med 4), and especially with those of general medicine (N Engl J Med 22, Lancet 18, JAMA 8, BMJ 5) and basic science (Cell 41, Nature 27, Science 22, J Exp Med 15).

The basic reason for the low IF scores of the clinical, especially orthopedic, journals is probably the above-described definition of the IF: for an unknown reason the SCI has included in the IF calculation of the index year only articles published during the 2 preceding years, which is probably too short a period for orthopedics. In other words, the high-quality articles published in Acta Orthopaedica Scandinavica and related journals probably receive a respectable number of citations in the other journals, but often later than 2 years after the publication!

Thus, what would be needed is an increase in the preceding years, which matters in the IF calculation, and, therefore, we suggest that the leading journals in the fields of orthopedics, traumatology and sports medicine should take concerted action and create, together with the Science Citation Index, an additional IF, so-called cumulative IF, in which a larger number of preceding years of the index journal, perhaps 10–15 years, would be included in the calculation. It would then be most interesting to see the journal ranking order with this new IF. We feel that, with the use of a cumulative IF system, the journals, in which the number of citations starts to accumulate slowly but is finally much greater, would receive a better ranking than with the current IF calculation system. To support this, Nieminen et al. (1995) published a bibliometric study where they considered all medical studies published by the University of Oulu, Finland, in 1987 and looked into the association between the current (2-year) IF score of the journals where these Oulu publications appeared and the number of citations which the studied 1987 papers actually received in the other journals until 1993 (6-year cumulative IF). They observed that, in basic science articles, the current IF predicted the number of 6-year citations quite well ($r = 0.69$), while in clinical articles the correlation was clearly poorer ($r = 0.35$). In other words, in basic science a typical article seems to receive most of its citations within 2 years after its publication. In clinical science, (and probably especially in orthope-

dics), the total number of citations is much larger than the current IF score indicates.

Overall, in our opinion, the SCI could, at least as a 1-year experiment, create and publish 2 annual IFs instead of 1: the regular IF for basic science and related areas, and the cumulative IF for clinical sciences and other areas, where the studies are often long-term and the publishing and citation cycles slower.

We, in the fields of orthopedics, traumatology and sports medicine, would really like to see the results!

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Nieminen P, Bloigu A, Kukkonen J, Isohanni M. Bibliometria lääketieteen tutkimuksen arvioinnissa (Bibliometry in the evaluation of medical science) (in Finnish). Duodecim 1995; 111: 134-45.