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The quality of the scientific output of 100 global leaders in the field of endocrinology

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We would like to present the scientific output of 100 global leaders in endocrinology. In the current study the assessed scientific outputs, ranked by Hirsch index, were compared with figures obtained with the use of a new index: the Scientific Quality Index (SQI). Data for 100 researchers with the highest numbers of published papers were derived from the Scopus database for key words *endocrine/hormone* for a period of five years. The following bibliometric parameters were applied: the h-index for all citations, the h-index, calculated after the exclusion of self-citations and the citations of all co-authors, the citation index (except of the citations by the first author and by all co-authors), the number of all the published papers, the number of cited papers, the number of papers cited at least 10 times, and the percentage of papers cited at least 10 times among all the published papers, including those with no citation.

Using the selected bibliometric parameters, the SQI was calculated according to the following formula:

Parameter No. 1 + Parameter No. 2,

where:

— parameter No. 1 (the percentage of papers cited ≥ 10 times) = the number of papers cited ≥ 10 times (excluding self-citations and the citations of all co-authors), divided by the number of all the published papers multiplied by 100%;
— parameter No. 2 (the mean number of citations per paper) = the total number of citations (excluding self-citations and the citations of all co-authors), divided by the number of all the published papers.

The following values were obtained for bibliometric variables: the number of all the published papers — 15.9 ± 4.8; the citation index — 150 ± 122; the number of cited papers — 13.2 ± 5.1; the number of papers cited at least 10 times — 4.7 ± 3.2; the percentage of papers cited at least 10 times, out of all the published papers, including those with no citation – 32.0±18.1; the mean number of citations per paper — 10.1 ± 8.3; h-index: 6.44 ± 2.1; and SQI: 42.1 ± 25.0. When the analysed subjects were ranked by the h-index and SQI, the most important finding was that 96% of the authors changed their initial ranking position, established primarily by the h-index. Out of all the authors, 55 shifted upwards, while 41 shifted downwards vs. their initial h-index ranking position.

All parameters correlated significantly with the h-index, while SQI did not correlate with *pure* quantitative variables, e.g. either with the number of all the published papers or with the number of cited papers. Regarding other variables, SQI correlated significantly well. As indicated by the Fischer test, all the coefficients of correlation for the h-index and SQI differed significantly,

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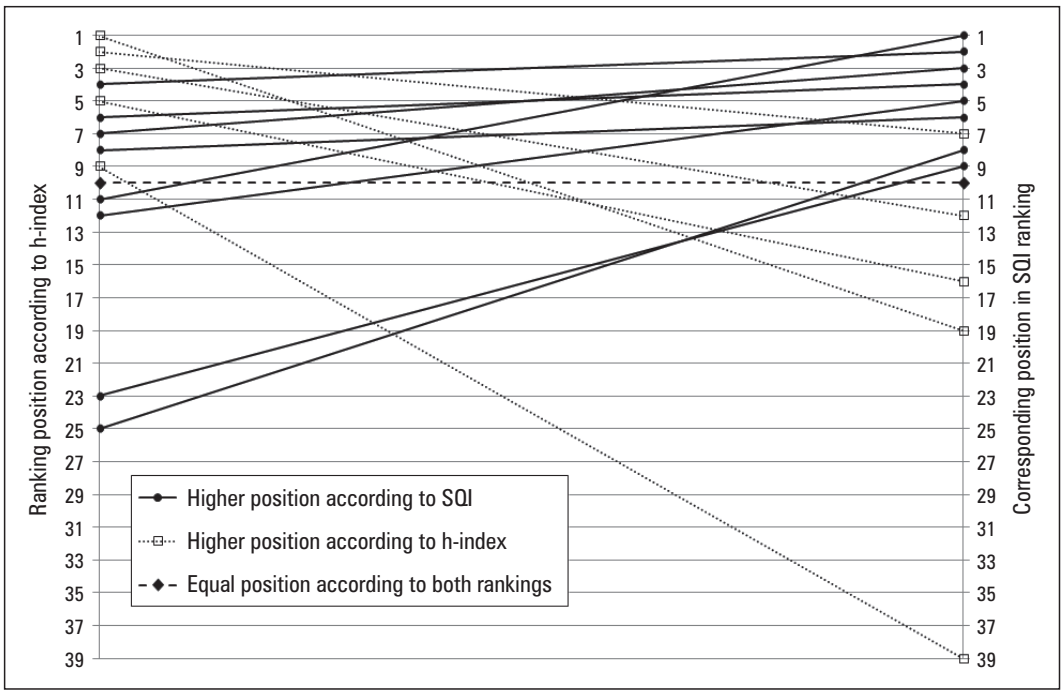

Figure 1. *Corresponding ranking positions, provided by h-index and Scientific Quality Index (SQI), for the researchers rated among "the top 10" in at least one of the analysed ranking systems*

Table I. Correlation analysis and comparison between r values for the h-index and *Scientific Quality* Index (SQI)

Variable	r value for the h-index	r value for SQI	p value according to the Fischer test
Number of publications	0.31*	–0.11 (NS)	< 0.01
Citation index	0.87*	0.85*	NS
Number of cited papers	0.57*	0.16 (NS)	< 0.001
Number of papers cited ≥ 10 times)	0.85*	0.93*	< 0.01
First parameter of SQI	0.73*	0.99*	< 0.001
Second parameter of SQI	0.78*	0.95*	< 0.0001

*p < 0.0001; NS — not significant

except r values for the citation index. The h-index and SQI correlated significantly with each other (0.75, p < 0.0001). Figure 1 presents the corresponding ranking positions, obtained in both assessment systems (this presentation is limited to 14 researchers with positions among "the top 10" achieved at least in one of the ranking systems). Table I presents a correlation analysis.

Concluding, SQI is a new tool, able to pick up the qualitative features from assessed scientific output in individual authors. SQI presents the unique feature of having the possibility to decrease over time, and so it may be recommended for longitudinal assessment of scientific output quality.

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