Publications About Hearing in Otorhinolaryngology Journals from Chinese Authors: A 11-Year Survey of the Literature

Tao Xue · Li Wei · Ding-jun Zha · Li Qiao · Jian-hua Qiu ·
Lian-jun Lu · Zhao-Hui Shi

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Abstract Hearing loss is a leading cause of disability in China. However, the research status in the field of hearing among Chinese individuals in the three major regions of China: Mainland (ML), Hong Kong (HK) and Taiwan (TW), are unknown. The output of hearing articles published in international otorhinolaryngology journals from these three regions were compared in this study. Articles published in 31 international otorhinolaryngology journals related to hearing originating from the ML, TW and HK from 2000 to 2011 were retrieved from the PubMed database search. The number of total articles, clinical trials, randomized controlled trials, case reports, and articles published in the top 5 international otorhinolaryngology journals were assessed in terms of quantity and quality comparisons. The total number of articles from the three regions increased significantly from 2000 to 2011. There were 379 articles from ML (143), TW (180) and HK (56) in the past 10 years. The number of articles published per year from the ML has exceeded those from TW in 2009 and HK in 2003. TW

had the most articles (46) published in the top 5 international otorhinolaryngology journals among the three regions. The total number of articles from the three major regions of China increased significantly from 2000 to 2011. The numbers of articles published per year from the ML have exceeded those from TW and HK. However, the quality of articles from TW is better than that from ML.

Keywords Hearing · Otorhinolaryngology · Research · Impact factor (IF) · Science citation index expanded (SCIE)

Aims

Hearing impairment is one of the most common disabilities in modern times and affects 250 million people worldwide [1]. Hearing loss is a major challenge for modern medicine, and individuals of Chinese ethnicity are one of the groups at high risk of hearing problems in the world. Hearing loss remains the leading cause of disability in China [2–4]; with Gentamicin-induced deafness is the major cause [5]. In general, the number and percentage of research articles published in scientific journals is a reflection of research activity in a country. Although it was suggested that China ranked the second in the top 20 countries sorted by articles in all fields from Essential Science Indicators, however, to-date little is known about Chinese authors' contribution to the field of hearing. We therefore intended to determine the contribution of Chinese authors during 2000–2011 in the three major regions of China [Mainland (ML), Hong Kong (HK) and Taiwan (TW)] to research in the field of hearing.

Tao Xue, Li Wei and Ding-jun Zha contributed equally to this study.

T. Xue · D. Zha · L. Qiao (✉) · J. Qiu (✉) · L. Lu · Z.-H. Shi
Department of Otolaryngology, Xijing Hospital, Fourth Military
Medical University, Changle West Street, No. 17, Xi'an 710032,
Shaanxi, People's Republic of China
e-mail: qiaoli@fmmu.edu.cn

J. Qiu
e-mail: qiujh@fmmu.edu.cn

L. Wei
Department of Obstetrics and Gynecology, Xijing Hospital,
Fourth Military Medical University, Changle West Street,
No. 17, Xi'an 710032, Shaanxi, People's Republic of China

Materials and Methods

Eligibility and Search Strategy

In total, 31 journals related to otorhinolaryngology were selected. The selection criteria were that the journal: (1) was listed in the “Otorhinolaryngology” category of the Science Citation Index Expanded (SCIE) subject categories of the Institute for Scientific Information (ISI); (2) had an impact factor (IF) in 2009 according to the Journal Citation Reports (JCR) 2009. A computerized literature search was conducted in the PubMed database on 1 April 2011. Articles published from the ML, TW, and HK during January 2000 to March 2011 in these journals were elicited, respectively. The ISSN (Print) was used to perform searches in PubMed. The search terms used were: “0001-6489 or 0196-0709 or 1050-6586 or 0003-4894 or 0886-4470 or 1420-3030 or 0385-8146 or 0001-6497 or 1749-4478 or 0179-051X or 0196-0202 or 0937-4477 or 1043-3074 or 0378-5955 or 0017-6192 or 1499-2027 or 0165-5876 or 1050-0545 or 0022-2151 or 1916-0216 or 0957-4271 or 0892-1997 or 1525-3961 or 0935-8943 or 0023-852X or 0301-1569 or 1531-7129 or 0030-6665 or 0194-5998 or 0300-0729 or 1531-5010” Search terms included “Hearing” “Hong Kong[ad]”, “Taiwan[ad]”, and “China[ad] NOT Hong Kong[ad] NOT Taiwan[ad]” “2000/01/01”[Publication Date] : “2011/03/31”[Publication Date]. Articles that showed the first author’s affiliation (ad) with the three regions were considered as research output from the regions. The number of articles in the field of clinical trials, randomized controlled trials (RCT) and case reports were generated, respectively, according to the publication types by PubMed.

Data Abstraction and Analysis

To compare the quality of the research articles, the percentage of each region’s articles about hearing field in international otorhinolaryngology journals in the world’s output was generated, along with articles published in the top 5 high IF journals were also determined. According to JCR 2009

established by the ISI, the ISSN of the top 5 high IF international otorhinolaryngology journals included 1420-3030, 1525-3961, 0196-0202, 1043-3074 and 0378-5955.

We extracted data from the final included studies using 2 independent reviewers (Tao Xue and Li Wei), and the discrepancies in final data extraction were resolved by discussion with two-third reviewers (Jian-hua Qiu and Qiao Li). We extracted all available data from each publication. The reviewers were not masked to any aspect of the studies (e.g., journal type, author names, or institution). Statistical analyses were performed using SPSS 13.0 (SPSS Inc., Chicago, IL, USA) [14]. Correlation analysis was used to determine change in time trend between 2000 and 2009. The χ^2 square test was used to compare the publication difference between the three regions. Two-tailed tests were used throughout the analysis and statistical significance set at $P < 0.05$.

Results and Analysis

Total Number and Percentage of Articles

There were a total of 10,181 articles about hearing published in the selected 31 international otorhinolaryngology journals from 2000 to 2011 based on a PubMed search around the world. There were 379 articles (379/10181, 3.72 %) from China: 143 (37.73 %) from ML, 56 (14.78 %) from HK and 180 (47.49 %) from TW. From 2003, the number of articles published from ML exceeded that from HK and in 2009 ML exceeded TW (Fig. 1).

High Impacted Otorhinolaryngology Journals

A total number of 80 articles about hearing from the three regions were published in the 5 top-ranking otorhinolaryngology journals. 39.68 % (25/63) were in Hearing Research, that the aim of the journal is to provide a forum for papers concerned with basic auditory mechanisms. TW published 46 articles in high impact otorhinolaryngology journals, 9 for HK, and 25 for ML.

Fig. 1 The trend of the number of publications about hearing in otorhinolaryngology journals from Mainland, Taiwan, and Hong Kong in the past 10 years

Discussion

Scientific publications are the best means of introducing new medical information and clinical applications to a large audience of physicians. Publishing in peer-reviewed journals is a fundamental aspect of medical research. Peer review, known as refereeing in some academic fields, is a process of subjecting an author's scholarly work, research or ideas to the scrutiny of others who are experts in the same field. Indeed, the number and quality of publications are usually considered objective parameters of scientific accomplishment. On a larger scale, publications are the main determinants of the generally perceived scientific status of single countries [6]. However, to-date little is known about China's contribution to the field of hearing in international otorhinolaryngology journals.

To the best of our knowledge, this is the first report to reveal the contribution of Chinese authors in major regions of China, ML, HK and TW, to the research in the field of hearing in international otorhinolaryngology journals. The results of our survey suggest that among the in major regions of China, the most exciting evidence of change is the total number and percentage of articles from China in the field of hearing in international otorhinolaryngology journals, which have increased significantly during the past 11 years. In the present study, it seems exciting that ML has improved the research in the field of hearing, and the articles in international journals increased significantly during the past 10 years. From 2003 onwards, the number of articles published from the ML exceeded that from HK and in 2009, ML exceeded TW. This positive trend might be attributed to an increase in research manpower, the allocation of more research grants and other factors related to this field in the past 11 years. However, the exact reason remains unknown.

The ML has the largest population of patients with hearing diseases in the world. Hearing loss research in China is now beginning to bear fruit more widely, with the emergence of research centers and projects that are making waves internationally. It is of interest that the ML has improved hearing research, and the articles in international otorhinolaryngology journals have increased significantly in the past 10 years. However, TW had more articles published in international otorhinolaryngology journals than the ML before 2009. There are several reasons for this difference. First, the real development level in research on hearing in the ML is lower of the two developed regions. Secondly, the considerable portion of otorhinolaryngologist's ability to read and write English in the ML is still poor, and therefore it is associated with difficulty in preparing English manuscripts.

This study also used data from the JCR. The JCR has been published by the ISI since 1975 and represents the

most comprehensive citation index to the scientific literature, which covers 6,598 journals at 2008. SCI was first used for academic evaluation in ML in late 1980s, that the reason for doing so was that an objective evaluation criterion was lacking in ML, and that as many academic disciplines were immature in ML, an evaluation based on peer review was impossible. As a result, the number of ML's SCI papers grow rapidly, in 2007 the total number of papers was 94,800, making China the world's third largest SCI paper producer, after the United States and the United Kingdom.

There are some limitations to our study. Firstly, we were also limited by the authors' address (China, HK, or TW), some studies were conducted in joint collaboration by mixed teams of local and international researchers and only the corresponding author affiliations were included as the origin of research in the PubMed database. In fact, there was also Macau included in our study in our previous design. But we later excluded it when we found there were no articles affiliated to it. Secondly, we only selected the journals from the otorhinolaryngology category of SCIE subject categories by the ISI, some journals in SCIE are from other categories such as Neurosciences are not included [7–9]. Thirdly, we excluded some other type of papers such as letter to editor [10]. Finally, a substantial number of articles by Chinese authors are published in journals in Chinese [11–14].

In conclusion, the number of articles about hearing published from ML, TW, and HK increased significantly during the past 10 years. The number of articles published per year from the ML has exceeded those from TW and HK. Hearing research in China has developed rapidly in the last 10 years. Authors from China need further advocacy and encouragement to submit their work to major regional and international journals.

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Conflict of interest None.

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