Brief Report on Academic Productions on Rheumatic Diseases in China

Ying Gao¹, Xingzhen Liu¹, Lanling Zhang¹, Ting Xia² and Dongbao Zhao¹*

¹Department of Rheumatology and Immunology, Changhai Hospital, Second Military Medical University, Shanghai, China
²Xiangyin Road Retired Cadres Sanitarium, Second Military Medical University Shanghai, China

*Corresponding author: Dongbao Zhao, Department of Rheumatology and Immunology, The First Affiliated Hospital of Second Military Medical University, 168 Changhai Road, Yangpu District, Shanghai, 200433, China, Tel: +86 15921061312; E-mail: dongbaozhao@163.com

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Abstract

Academic productions by Chinese scholars have grown to the second place worldwide since 2009. However, little was known about Chinese academic contributions and influences on rheumatic diseases. In order to present a panorama of this field, a bibliometric analysis was performed based on data from two databases from 1987 to 2015. China has kept the third place in rheumatic diseases’ publications since 2013. Nevertheless, most of these articles came with low impact factors and infrequent citations. Multidisciplinary teams led by orthopedists and rheumatologists were being built. Most popular journals mainly focused on rheumatology, while journals about Chinese medicine were unpopular. Though on right tracks, to study rheumatic diseases well in China, efforts from all aspects are needed.

Keywords: Rheumatic diseases; China; Bibliometric analysis

Introduction

Prevalence of rheumatic diseases ranges from 11.6% to 46.4% in China [1], resulting in physical disability, low life quality and high economic burden to Chinese patients. The Journal Citation Reports (JCR) 2014 demonstrates that China is now second only to the USA in the number of annual scientific publications [2].

Since the first rheumatology unit in China was established in 1980 in the Peking Union Medical College Hospital, rheumatology has experienced great progress in both clinical practices and basic researches [3]. However, little was known about Chinese academic contributions to rheumatic diseases.

To evaluate the quantity and quality of Chinese articles on rheumatic diseases internationally and domestically, a bibliometric study was conducted, based on PubMed and Web of Science records from 1987 to 2015.

Materials

The PubMed database was searched cautiously on 2016/2/27 to obtain the publication volumes of worldwide nations. Medical Subject Headings (MeSH) term “rheumatic diseases” was adopted and language was restricted to English with a publication date from 1987/1/1 to 2015/12/31.

All citable literature like case reports/series, original articles (including RCT/CCTs, clinical and fundamental researches) and reviews (including meta-analysis and systemic reviews) met the inclusion requirements. The average impact factor (IF) of journals involved in the research was in accordance with the JCR 2014 (Thomson Reuters).

The citation times of each paper were collected from Web of Science. Publication sums of major countries from 2006 to 2015 were compared. Besides, IFs and citations on average were calculated and compared by year and specialty. Top 25 popular journals were also listed.
### Results

Totally, 138,103 articles on rheumatic diseases have been published till 2015 worldwide. The top 10 countries included the USA (13.97%), the UK (6.26%), Japan (4.79%), Netherlands (3.23%), Germany (2.86%), Canada (2.63%), France (2.60%), Italy (2.54%), China (2.17%) and Australia (1.74%). As is shown in Figure 1, China has kept a steady increase, and has remained the third place since 2013. Of the 2,109 Chinese articles finally entered analysis, only 13 had high IFs (>10). The average IF was 2.71, and average citations were 10.53 times. Though accumulated IFs and citations increased significantly, average IFs barely changed these years (Figure 2A), and annual average citations peaked at 2010, but later declined from 2.64 to 1.11 times (Figure 2B).

As is shown in Table 1, multiple disciplines were involved. Orthopedists (27.12%) and rheumatologists (18.07%) were particularly active in the field of rheumatic diseases (osteoarthritis [OA] and rheumatoid arthritis [RA] respectively). Immunologists (3.65%) also contributed a lot with greater average IF and citations especially.

### Discussion and Conclusion

This bibliometric study revealed a huge development of rheumatology in China, but also indicating an undeniable truth that qualities of our articles fell far behind the quantities. To solve the problem, a more interactive, intellectual environment with more fair and open funding opportunities need to be offered by the government. Some experiences from Hong Kong or Taiwan might be useful. Additionally, a multidiscipline team led by rheumatologists and orthopedists, supported by other specialty experts is essentially necessary.

To evaluate academic contributions, more attentions should be paid on creativity and innovation, instead of IFs and citations.

### Table 2: Top 25 journals published articles on rheumatic diseases by Chinese authors.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Journal</th>
<th>Number (%)</th>
<th>Rank</th>
<th>Journal</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rheumatol Int</td>
<td>100(4.74%)</td>
<td>11</td>
<td>J Arthroplasty</td>
<td>26(1.23%)</td>
</tr>
<tr>
<td>2</td>
<td>Clin Rheumatol</td>
<td>76(3.60%)</td>
<td>12</td>
<td>J Tradit Chin Med</td>
<td>25(1.19%)</td>
</tr>
<tr>
<td>3</td>
<td>Chin Med J</td>
<td>65(3.08%)</td>
<td>13</td>
<td>Ann Rheum Dis Arthritis Res Ther</td>
<td>23(1.09%)</td>
</tr>
<tr>
<td>4</td>
<td>PLoS One</td>
<td>55(2.61%)</td>
<td>14</td>
<td>Int J Rheum Dis Int Orthop</td>
<td>22(1.04%)</td>
</tr>
<tr>
<td>5</td>
<td>J Rheumatol</td>
<td>48(2.28%)</td>
<td>15</td>
<td>Biochem Biophys</td>
<td>20(0.95%)</td>
</tr>
<tr>
<td>6</td>
<td>Rheumatology</td>
<td>35(1.66%)</td>
<td>16</td>
<td>Chin J Integr Med Inflammation Mol Biol Rep</td>
<td>18(0.85%)</td>
</tr>
<tr>
<td>7</td>
<td>Osteoarthritis Cartilage</td>
<td>31(1.47%)</td>
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<tr>
<td>8</td>
<td>Mol Med Rep</td>
<td>30(1.42%)</td>
<td></td>
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<tr>
<td>9</td>
<td>Arthritis Rheum Clin Rheumatol</td>
<td>29(1.38%)</td>
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</tr>
<tr>
<td>10</td>
<td>Int Immunopharmacool Cl</td>
<td>28(1.33%)</td>
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</table>

More databases like EMBASE need to be searched for a higher sensitivity and specificity. Though we are developing on right tracks, there is still a long way for Chinese academies in the field of rheumatic diseases.

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### References
