



## Transplantation Research in Iran: A Bibliometric Study

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### ABSTRACT

**Background.** Scientific articles are indicators of research interest and efforts in every country. The aim of the current study is to describe the characteristics of the transplantation-related research efforts with respect to the domestic published works in Iran between 1993 and 2003.

**Materials and Methods.** In a descriptive design, we searched IranMedex (Iranian database for indexing medical articles; available at: <http://www.iranmedex.com>) for all the biomedical articles published between 1993 and 2003 in 91 Iranian journals. The search was conducted using “transplantation” and “transplant” as key words. A printed copy of the references was reviewed individually so as to identify the transplanted organ, study design, number of authors, and type of article.

**Results.** Among 11371 articles, 545 (4.8%) were related to transplantation. An increasing trend was observed in the number of publications from 1993 to 2003. Most articles were published in Farsi (90%). The most frequently published articles were original articles (84.4%). The main subjects of were kidney (61.7%), followed by liver (12%) and bone marrow transplantation (10.8%). Cornea was the topic of research in only 3% of the papers. Of all manuscripts, 9.5% consisted of clinical trials. The mean number of authors was  $3.6 \pm 2.2$  (1 to 14).

**Conclusions.** Iranian researchers seem to be interested in the topic of transplantation; however, some fields of transplantation are neglected. This pooling of valuable information can be used by other countries, especially by researchers from the Middle East Society for Organ Transplantation region. Such databases could form an invaluable network for an exchange of experience in the region to solve common problems.

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**B**IOMEDICAL RESEARCH has had a great impact on researchers, health professionals, and policy makers.<sup>1</sup> While the publication of scientific results is the key phase in scientific work, bibliometric studies such as the number of published articles are used as an adjunct to assess scientific performance of a country.<sup>2</sup> This study sought to analyze domestic research publications of Iran in the field of transplantation, from 1993 to 2003.

### MATERIALS AND METHODS

This research was conducted in August 2006, using the IranMedex (IRANIAN MEDLINE, available at <http://www.iranmedex.com>) database to analyze transplantation literature. This local bibliographic database covers all publications of Iranian biomedical journals registered and indexed in Iran's ministry of health. For this review, we used all IranMedex records from 91 journals during 1993 to 2003, which consisted of 11371 articles. The search

was performed with the key words of “transplantation” and “transplant.” A hard copy of the abstracts of the transplantation-related articles was used to extract the following data: the year of publication, number of authors, language of the article,

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country of the first author, article type, and subject and study design.

## RESULTS

Among 11371 articles, 545 (4.8%) articles were related to transplantation. An increasing trend was observed in the number of transplantation-related publications: less than 1% to 6% of the total ( $P = .05$ ). Most articles were published in Farsi ( $n = 490$ ; 90%), others were published in English. The mean number of authors per article was  $3.6 \pm 2.2$  (1 to 14). All first authors were Iranian. The most frequently published articles were original articles ( $n = 460$ ; 84.4%). The main subject of articles were kidney ( $n = 336$ ; 61.7%), followed by liver ( $n = 65$ , 12%), bone marrow ( $n = 59$ , 10.8%), and cornea transplantation ( $n = 16$ , 3%). The remaining 12.5% of all articles were related to other fields. Of all articles, 9.5% consisted of clinical trials.

## DISCUSSION

Our bibliometric study found that in Iran the total number of medical articles dealing with transplantation has increased during the past decade. This growth has previously been reported in the total number of articles published in Iran during the past decade.<sup>3,4</sup> This increased number of transplantation-related articles is also in line with progress in the country in the field of transplantation, in terms of increasing number of centers and transplanted patients,<sup>5</sup> which has made Iran the most active country in the field of transplantation in the Middle East Society for Organ Transplantation (MESOT) region.<sup>6</sup> In addition, a good proportion of our manuscripts were original articles, which are of higher value.<sup>1</sup>

The number of articles for each organ seemed to be proportional to the number of transplanted patients and transplantation centers for that specific organ. Kidney transplantation has 23 centers and nearly 17,000 transplantations. Liver has only two centers and 131 transplanted patients and has less attention.<sup>5</sup>

The majority of published articles were in Farsi. Though all of them have an English abstract, this could be a problem in sharing the information with other countries. Unknown resources, lack of the link between MESOT countries, and problems having full access to published articles are other barriers to sharing information between regional scientific centers. The MESOT region is a rich

scientific pool of data from the Arab world with 300 biomedical journals.<sup>7</sup> Turkey<sup>8</sup> and other countries have good potential to conduct shared researches.

Quantification of scientific productivity of a country could show that country's development and performance in the health system,<sup>9</sup> as well as its research status in a specific field<sup>2</sup> and degree of contribution to the sciences. These kinds of evaluations can greatly affect the decision-making process in medical research: promotion, personnel, research time, facilities, and stimulation. Conducting volume and trend analyses of transplantation-specific publications is recommended for other MESOT countries. Besides, developing a shared bibliographic database for MESOT transplantation scientists is a critical strategy for development of transplantation activities in this region.<sup>7</sup>

In conclusion, good publication activities in Iran are in line with high transplantation activity in the country. Transplantation research in some specific organs in Iran is a young field, secondary to few transplantation centers in that field. These areas still require government support. Other countries may use bibliometric analyses to evaluate their situation. It seems that Iran, Arab countries, and Turkey, by sharing their transplantation science that are currently publishing domestically, will further develop transplantation activity in the MESOT region.

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