

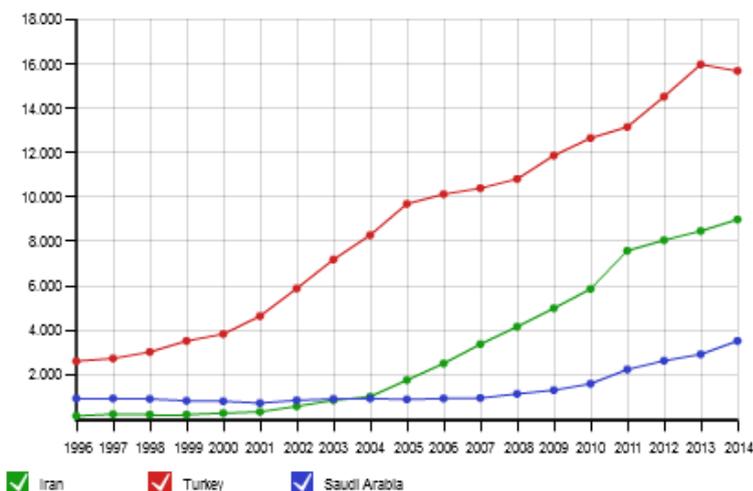
# Current Position and Future Milestones of Research in the Field of Anesthesiology in Iran

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The nature of academic excellence and the itinerary that may lead to coming off the potential scientific outcomes are changing over the years. Indicators of good scientific activities are challenging issues still to be determined. h-index which was suggested by Jorge E. Hirsch is based on the set of the scientist's most cited papers and the number of citations that they have received in other publications [1].

In this commentary, we have given a glance to the current status of scientific advances in anesthesiology, pain medicine and critical care medicine in Iran, in comparison with some analogous Middle East countries. We go over the recent reports of the SCImago Journal & Country Rank which is a portal that includes the journals and country's scientific indicators developed from the information contained in the Scopus® database [2].

**Figure 1- Number of published medical documents per year by three Middle East countries (Adapted from 2015 report of Scopus®)**



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Among all the rated countries by SCImago, Iran is ranked as 23 in the number of published documents in the period from 1996 to 2013. This position finds demotion to 27 when we look at published documents in medicine [2]. Comparing the three more or less equitable Middle East countries (Iran, Turkey and Saudi Arabia), shows more steep slopes of increasing number of medical documents from 1996 to 2013 in Turkey and Iran (Figure 1). Despite more gradual increases in the number of medical documents, Turkey has the highest h-index in this period of time, followed by Saudi Arabia and Iran (Figure 2).

In the case of both number and h-index of documents of Anesthesiology and Pain Medicine, Turkey overtook the other two countries after 2001 (Figure 3-4). When we look at the field of Critical Care and Intensive Care Medicine, the results are also similar (Figure 5-6).

Although there was a trend towards more international collaborations up to 2003, since then Iranians had less published medical documents in collaboration with scientists from other countries in the fields of Anesthesiology, Pain Medicine and Critical Care Medicine (Figure 7).

By combining the findings above, it seems that during recent years, the quantity of scientific documents has been significantly developing in Iran. Despite this improvement there is a big lack of quality improvement in comparison with the other two countries in the region. This could be due to an incomplete solidarity in a process named Knowledge Transfer (KT) in Iran. KT is defined as the synthesis, exchange, and application of knowledge by relevant stakeholders to accelerate the benefits of global and local innovation in strengthening health systems and improving

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people's health [3].

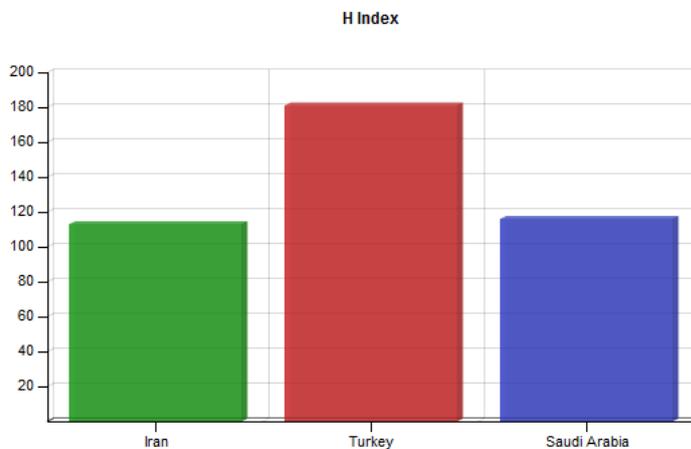
KT encompasses a five step approach of message, target audience, messenger, KT process and support system and evaluation and begins with the research question [4]. As far as we do not pay enough attention to our most relevant problems in the field of anesthesiology, critical care and pain medicine, it is not practical to establish research questions which may potentially lead to best practice of stakeholders (e.g. other researchers who will find the results of research beneficial to cite them).

Building up the essentials for a systematic approach to question rising, needs a throughout intra- and inter-organizational team work in health system. The missing

links which able us preparing such incorporations are Research Centers of Anesthesiology, Critical Care and Pain Medicine. Such facilities could participate in determining community oriented priorities and make reasonable connections with both policy makers and stakeholders (e.g. patients and medical staff).

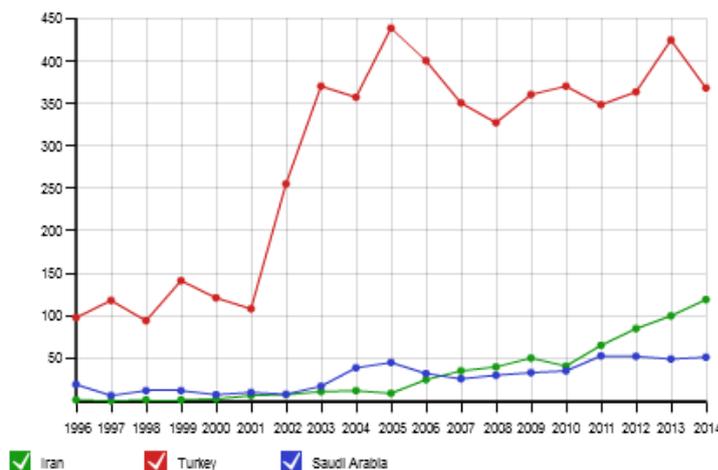
Research centers could be able to absorb funding and make international cooperation with other institutes which are interested in similar topics. Finally such centers can produce guidelines for both best medical practice and evaluation of effectiveness of protocols attitude change.

**Figure 2- h-index of three Middle East countries for medical documents in time period 1996-2013 (Adapted from 2015 report of Scopus®)**



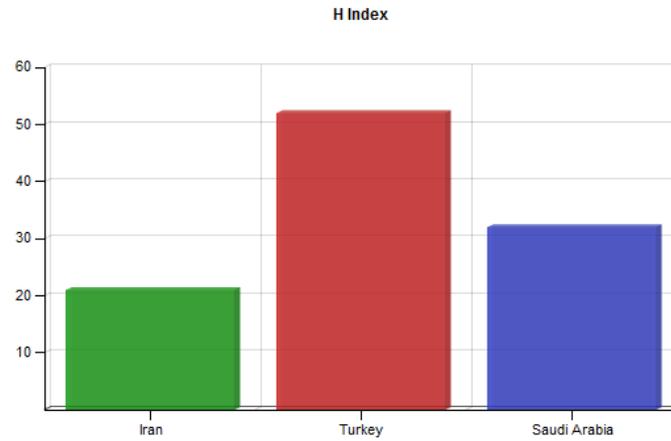
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**Figure 3- Number of published documents per year in anesthesiology and pain medicine by three Middle East countries (Adapted from 2015 report of Scopus®)**



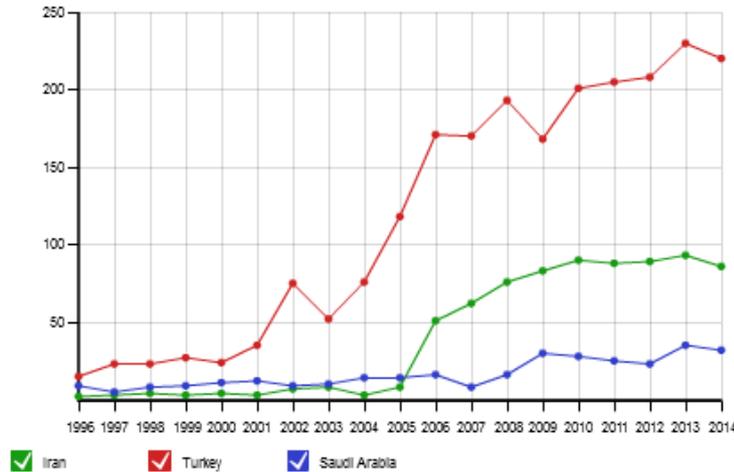
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**Figure 4- h-index of three Middle East countries for documents in anesthesiology and pain medicine in time period 1996-2013 (Adapted from 2015 report of Scopus®)**



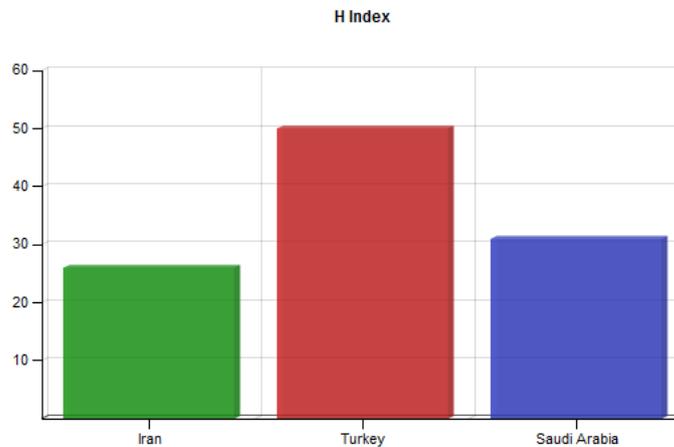
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**Figure 5- Number of published documents per year in critical care and intensive care medicine by three Middle East countries (Adapted from 2015 report of Scopus®)**



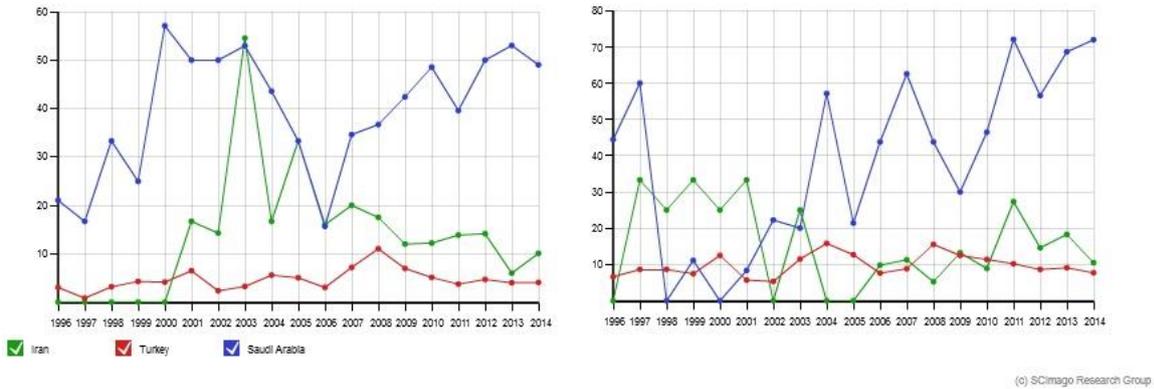
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**Figure 6- h-index of three Middle East countries for documents in critical care and intensive care medicine in time period 1996-2013 (Adapted from 2015 report of Scopus®)**



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**Figure 7- Percentage of documents with more than one country in anesthesiology and pain medicine (A) and critical care and intensive care medicine (B) by three Middle East countries (Adapted from 2015 report of Scopus®)**



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