Current status of medical science in Turkey

Why this special issue?

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Since 2014 there has been a substantial increase in the number of manuscripts submitted to the *Wiener klinische Wochenschrift* from Turkey. To highlight the significant contribution made by Turkish scientists to this journal, a special issue has been prepared to collectively publish a selection of articles from Turkey which is currently available online. We were asked to be guest editors for this issue and gladly accepted. In our opinion, writing an editorial to this special issue would be meaningless without giving a background on the recent developments with respect to scientific and medical activities in Turkey.

Turkey, with its geopolitical location and a population of 77 million, is considered to be 1 of the 20 largest economies of the world. Due to the long-standing negotiations with the European Union (EU) on harmonization, radical changes in the regulations and directives related to education and science have occurred in the last 25 years, even though a number of political issues remain unresolved. In this period, Turkey has taken the initiative to promote and support structured educational programs and scientific studies with the aim of improving the quality and quantity of scientific activity in the country. Based on ISI Web of Science 2015 data this policy seems to have been successful, as there has been a two-fold increase in the addressed papers originating from Turkey within the last 10 years. Today, more than half of the studies

performed in Turkey are in medical sciences, most notably oncology, hematology and anesthesiology, which can partially be explained by the increasing number of medical schools. According to recent data there are a total of 74 state-owned and private medical schools in Turkey, from which around 12,000 doctors graduate each year. Almost 30,000 faculty members and research fellows participate in research and medical training activities; women are strongly represented in the medical community, making up approximately 50% of all scientific faculty members as well as division heads at the medical school hospitals.

With regards to peer-reviewed medical journals, as of 2015 there are 147 peer-reviewed medical journals published in Turkey and 28 are indexed in Thomson Reuters Web of Science with impact factors ranging from 0.17 to 4.13 for the year 2014. Turkey ranks merely 31st worldwide for its participation in clinical and drug trials with 1746 trials and a share of 0.98% based on the 2015 data at ClinicalTrial.gov; however, it is one of the 6 countries showing a positive trend along with France, the UK, Spain, China and South Korea. In comparison, the USA takes a 45% share of all registered clinical trials. Previously, Turkey was not considered to be an appropriate candidate for early and late phase drug trials by pharmaceutical companies for many years due to the lack of relevant standards and regulations. After harmonization and improvement in the technical infrastructure of the study centers due to the efforts to comply with the related EU directives on clinical trials, the interest of innovator companies to include Turkey in multicenter international drug studies has increased. This has led to a rise in the number of patients having access to new therapeutic options. Currently, there are three centres (1 pediatric and 2 adult) in Turkey that are officially accredited and actively running phase I studies.

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Istanbul University, the source of academic growth in Turkey

The increase in the overall scientific performance in medical sciences in Turkey and in the number of citable documents coming from Turkey is striking: in 18 years from 1996 to 2014 this number rose 536% from 2433 to 13,040 according to the SCImago Journal & Country Rank platform (<http://www.scimagojr.com>). In comparison, in the same period of time Austria increased its citable documents from 3061 to 5740; an increase of 188%; however, according to the H-index 2014 which uses the total number of scientific publications and the citations received, Turkey still ranks significantly lower (H-index: 181) than Austria (H-index: 329). One of the most noticeable numbers is the percentage of articles originating from studies involving more than two countries. This number has not changed for Turkey since 1996 and is stable at 10%, whereas that of Austria has risen from 27% to 61% between 1996 and 2014. This can, at least in part, be explained by Turkey's incomplete integration into the international scientific funds, e.g. EU funds. On the other hand current policies, such as increased budgets for the Scientific and Technological Research Council of Turkey (TÜBİTAK) provide

increased funding of scientific activities, which might have resulted in less need for Turkish investigators to collaborate with international partners for fund raising; however, TÜBİTAK also promotes and coordinates international collaboration by playing a mediator role for researchers interested in applying for international network programs, such as European Research Area Networking (ERA-NET). We can only hope that both sides, Turkey and international scientific communities, discover the feasibility, potential and advantages of collaborations for everyone involved.

To demonstrate the wide spectrum of scientific papers submitted and accepted after peer review in the Journal, 11 original articles and 1 case report were chosen. They show a wide range of topics from general medicine to gastroenterology, from urology to psychiatry and medical biochemistry, from universities throughout Turkey, many of which are not as well-known around the world as Istanbul University, founded in 1453 with over 90,000 students today.

We hope that this issue will not only be of interest to you based on the manuscripts and subjects included but also help you find scientific overlaps and collaborators who might follow in the footsteps of Dr. Behçet.

With best regards,

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Conflict of interest G. Sengölge and M.C. Ar declare that they have no competing interests.