Development of Gastroenterology and Hepatology in Iran: Part I-Training Programs and the Iranian Association of Gastroenterology and Hepatology

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Abstract
During the first half of the 20th century, all subspecialties of internal medicine were managed by general internists and there was no gastroenterologist in Iran.1 The first group of Iranian gastroenterologists who had completed their training program in France started working in Tehran in 1951. Later on, other specialists trained in USA and the United Kingdom joined them. Some of these specialists and some internists with special interest in gastroenterology and hepatology were in charge of gastroenterology education in divisions of internal medicine in the Medical Schools of Tehran, Shiraz, Isfahan, and other universities, while most of them were also practicing gastroenterology in their private offices on a part-time basis.

The establishment of subspecialty training program in gastroenterology and hepatology was firstly started in 1976 in Tehran University and later on and since 1984 in Shaheed Beheshti, and Shiraz Universities. This was a major step in the progress of this subspecialty, which is now one of the most active medical disciplines in Iran.2

In this paper, we aimed to describe the development and evolution of gastroenterology and hepatology in Iran during the last 60 years with emphasis on physicians and scientists, who played a major role in providing the first gastroenterology services in the country or had a major role in training, education, and research in this field. We also describe the attempts that led to the establishment of the Iranian Association of Gastroenterology and Hepatology, as the most important nongovernmental organization in this field.

Keywords: Gastroenterology • history of medicine • Iran

Introduction
The first modern training in Iran started following the efforts of Mirza Taghi-Khan Amir-Kabir—the Prime Minister of Nasereeddin Shah of Qajar Dynasty—for the establishment of Dar al-Funun in 1851. This western style academic university was founded for training of Iranian students in many fields of science and technology such as medicine, engineering, military sciences, and geology.3–5

Few western-trained physicians came to Iran as members of European delegations after the establishment of political relations between Iran and Europe during Safavid Dynasty. Meanwhile, some religious missions from Europe established few modern hospitals that were mainly used by Iranian royal family and nobles.6

Before the end of Qajar Dynasty there was no systematic healthcare delivery in the Iranian community. Traditionally-trained physicians (Hakims) who had been trained in the offices of older physicians (Masters) receiving permission from their mentors to treat people in their own offices. Hakims had been firstly taught Arabic language and religious philosophy and then medicine while they were working with their mentors.6,7 Although some people were sent by Prince Abbas Mirza and other royal family members to Europe for medical education, no significant improvement in healthcare or medical education happened during this period. Few foreign and Iranian physicians who were trained in Europe were usually in charge of treating the royal family. The first western-trained Iranian physician was Mirza-Baba who had graduated in medicine from the United Kingdom (UK) in 1812, and was responsible for medical care of Abbas Mirza and later Mohammad Shah.5,7
With the acceptance of the attitude for sending Iranian students to the European universities, the first group of students, most of them graduates of Dar al-Fonun, was sent in 1845. Later on, more students were sent to Europe. A systematic program was adopted during early Pahlavi Dynasty time. Indeed during 1928 – 1933 more than 125 students were sent for training to Europe especially France, but also a few to Switzerland, Turkey, Belgium, Germany, and UK. Some of these students were later involved in the medical training programs when came back to Iran.6

In Dar al-Fonun there was a section for medical training; however, most of its academic staff were Europeans.3 The first medical teacher in Dar al-Fonun was Jacob Eduard Polak from Austria (1818 – 1891), who had written some books about diseases of internal medicine such as diarrhea, typhoid fever, and cholera in 1852.8 After Polak a physician from Netherland, Johan Louis Schlimmer (1819 – 1881), was responsible for medical training in Dar al-Fonun. He wrote a book named Serrol-Hekmat in internal medicine that had a section in gastrointestinal diseases.9

As an institution, medical training became independent from Dar al-Fonun in 1918, and the formal medical education was started in 1934 in the newly opened Tehran University. The first teacher of the internal medicine at Tehran University was Ali Partow (The Great Physician or Hakim Aazam,1877), followed by Abbass Loghman Adham.6,7

The training of internal medicine that was started in 1938 in Tehran University was based on the efforts of Aalamol Molk, A. Loghman Adham, M. Azar, S. Pirooz Azizi, F. Moatazed, A. Rafaat, N. Hadavi, M. Morshed, A. A. Handjani, N. Mafee, and A. Pirnia.7,10,11 As new diagnostic methods and technologies evolved in the world, the need for specialty and subspecialty training in internal medicine was felt. So, after 1941 some graduates of Tehran University went to Europe and the USA for specialty training in different branches of internal medicine.7,11

Gastroenterology and Hepatology in Iran

Although the specialty of gastroenterology began in the world more than 100 years ago, in Iran this discipline started about 40 years later by some French graduates such as M.A. Gharbi, Y. Shahrdar, N. Nami, and others. These physicians were the first generation of gastroenterologists in Iran.11 Later other physicians such as H. Shirinloo, A. Maghazeei, R. Mohassel, Y. Jalali, H. Sarlati, Sorouri, Khodadoost, S. Mobaran, F. Borhan-Manesh, K. Nasr, S.H. Mir-Madjlessi, A. Shaffi, A. Saber, D. R. Furozan, and F. Navab joined them. Some of them were involved in training in different universities such of Tehran, Shiraz, Mellli, and Isfahan (Figure 1).12

The second generation of gastroenterologists in Iran were graduated from Iranian universities or returned from abroad after the Islamic revolution of Iran in 1979. M.R. Zali, H. Makkipour, R. Aghazadeh, R. Malekzadeh, B. Forozandeh, H. Eshraghi, and S. Fadaee, are the main persons who played important roles in establishing the subspecialty training in Iran.

In addition to the efforts of the first and second generations of gastroenterologists for development of the gastroenterology subspecialty in Iran, we should also mention the efforts of few other colleagues such as S. Massrerrat who was Professor of Gastroenterology in Marburg University (Germany). He came to Iran after revolution and spent the rest of his carrier in Iran with commendable efforts for better training of gastroenterology fellows and establishing successful scientific collaboration for research in gastroenterology in Iran.

The third generation of gastroenterologists, who at the present comprise more than 90% of gastroenterologists working in Iran, have been trained after accreditation of a two-year gastroenterology training program by the Iranian Ministry of Health, Treatment, and Medical Education in 1987.

Before 1974 there was no subspecialty training program in Iranian universities and all the educational, research, and therapeutic activities in this field were taking place in the departments of internal medicine.

Department of Internal Medicine in Saadi and Nemazee Hospitals at Shiraz (formerly Pahlavi) University was one of the first American-style departments which had a good and active gastroenterology teaching team for medical students and residents.12 F.A. Borhanmanesh, K. Nasr, and S. Adib-Bagheri (all graduated from the USA) were the main staff of this department, which was started in 1965. During the same period M. Maleki, and H. Daneshgar in Isfahan University, and Sorouri, Aminosharai, and Farzan in Mellli University (now Shaheed Beheshti University) in Tehran, started teaching gastroenterology discipline in internal medicine.
The first separate gastroenterology unit along with other subspecialty units for different disciplines of internal medicine such as cardiology, nephrology, rheumatology, and neurology was established in Dariush Kabir (now Shariati) Hospital of Tehran University. S.H. Mir-Madjlessi, who was a gastroenterologist graduated from Cleveland Clinic, USA, was the founder and the first chairman of this gastroenterology subspecialty division. Then, other physicians such as H. Makipour, H. Tavassoli, and S. Fadaee joined him and started training informal gastroenterology fellowship in addition to very good teaching programs for medical students and residents. Following this event other gastroenterology subspecialists such as F. Navab, J. Khodadoost, M.A. Rashid-Mohassel, Y. Jalali, H. Sarlati, and S. Moubarhan established the second gastroenterology program of Tehran University in Imam Khomeini Hospital (former Pahlavi Hospital). In 1977, R. Aghazadeh, the first gastroenterologist graduated from Shariati program finished his training and joined M.R. Zali, a USA-trained gastroenterologist who established the third department of gastroenterology in Taleghani Hospital at Shaheed Beheshti University in Tehran.

During 1975 – 1987 the training programs in the field of gastroenterology were informal and were performed as short-term fellowship programs in Tehran, Shiraz, and other universities. Each university had its own rules and regulations for enrollment, training process, and graduation of trainees (Figure 2).

With the persistent efforts of few colleagues such as S.H. Mir-Madjlessi, R. Malekzadeh, M.R. Zali, and R. Aghazadeh, the subspecialty training program was finally accredited by the Iranian Ministry of Health, Treatment, and Medical Education in 1987. At first this two-year program was established in Tehran, Shiraz, and Shaheed Beheshti Universities. Along with the establishment of subspecialty training program, the members of the Iranian Board of Examiners for Gastroenterology Subspecialty (IBEGS) were elected by the Ministry of Health, Treatment, and Medical Education. The members of the first IBEGS were S. H. Mir-Madjlessi, R. Malekzadeh, M.R. Zali, and R. Aghazadeh.

One of the most important components of the evolution of gastroenterology training in Iran was...
the implementation of new diagnostic and therapeutic procedures. Before 1970s upper gastrointestinal rigid endoscopy was present in few universities, but the first semi-flexible gastroscope which was made by Olympus Company (Japan) was brought to Iran and was used by Peter Cotton in Nemazee Hospital in Shiraz in 1971. F. Navab bought a fiberscope, the first generation of Olympus gastrointestinal fiberscope and used it in his private clinic and occasionally in Imam Khomeini Hospital (previously Pahlavi Hospital) since 1972. Sigmoideoscopy and colonoscopy were also introduced from 1975.

H. Eshraghi, a USA-trained gastroenterologist, started endoscopic retrograde cholangiopancreatography (ERCP) at Sina Hospital affiliated to Tehran University, and performed more than 500 ERCPs before 1977 in this center. H. Sarlati started diagnostic laparoscopy in Imam Khomeini Hospital, after returning from his training period in Germany in 1975. Diagnosis of viral hepatitis started in 1980 by using hepatitis B surface antigen testing and in 1996 by hepatitis C antibody by Laboratory of the Iranian Organization of Blood Transfusion. Achalasia balloon dilatation was started in 1987 by R. Malekzadeh and his colleagues in Nemazee Hospital in Shiraz. Endoscopic control of peptic ulcer and variceal bleeding started in 1990, in Tehran and Shiraz by S. Massarrat and colleagues. The *Helicobacter pylori* eradication for treatment of peptic ulcer disease started in 1989 and the results were published. The first orthotopic liver transplantation in Iran was performed in Nemazee Hospital, Shiraz, in 1993 by S.A. Malekhosseini and his colleagues. Endoscopic ultrasonography was started in 2000 by R. Sotodeh-Manesh and S.A. Mir-Bagheri in Tehran. Double balloon enteroscopy and capsule endoscopy started in Tehran in 2005 and 2006, respectively.

After 1987, the subspecialty training developed very well with increasing numbers of training programs. In addition to the programs in Tehran, Shaheed Beheshti and Shiraz Universities, other centers such as Gilan, Mashhad, Isfahan, Tabriz, and Ahwaz Universities of Medical Sciences became accredited for training gastroenterology (Table 1). Recently with the efforts of the training centers and under supervision of the Ministry of Health, Treatment, and Medical Education the two-year curriculum of gastroenterology and hepatology has been revised and accredited for implementation. The number of trainees increased from less than five per year at the beginning to more than 30 in 2008. According to the documents of Strategic Planning Committee for Gastroenterology the number of gastroenterologists should reach around 700 in 2025. So, the plan is to train more than 400 new gastroenterologists in next 15 years.

Pediatric gastroenterology and hepatology training program was also established first with the efforts of M.R. Khatami and colleagues in Tehran University of Medical Sciences and later in Shiraz and Shaheed Beheshti Universities of Medical Sciences in 2003. The liver transplantation fellowship program was established by S.A. Malekhosseini and his colleagues in Nemazee Hospital at Shiraz University of Medical Sciences since 2006.

**Iranian Society of Gastroenterology and Hepatology (ISGH)**

Establishing an Iranian association of gastroenterology and hepatology has a long history and backs to the years when the first Iranian

<table>
<thead>
<tr>
<th>University</th>
<th>Main hospital(s)</th>
<th>Established at</th>
<th>Number and ranking of academic staff</th>
<th>Trainee admission per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tehran</td>
<td>Shariati</td>
<td>1987</td>
<td>Assistant professor: 2, Associate professor: 5, Professor: 5, Academic staff: 12</td>
<td>6</td>
</tr>
<tr>
<td>Tehran</td>
<td>Imam Khomeini</td>
<td>1987</td>
<td>Assistant professor: 1, Associate professor: 4, Professor: 2, Academic staff: 7</td>
<td>5</td>
</tr>
<tr>
<td>S. Behesti</td>
<td>Taleghani</td>
<td>1987</td>
<td>Assistant professor: 6, Associate professor: 2, Professor: 1, Academic staff: 9</td>
<td>6</td>
</tr>
<tr>
<td>Shiraz</td>
<td>Nemazee, and Shaheed Faghihi</td>
<td>1987</td>
<td>Assistant professor: 6, Associate professor: 3, Professor: 2, Academic staff: 11</td>
<td>3</td>
</tr>
<tr>
<td>Mashhad</td>
<td>Ghaem and Imam Reza</td>
<td>2005</td>
<td>Assistant professor: 6, Associate professor: 1, Professor: 3, Academic staff: 10</td>
<td>3</td>
</tr>
<tr>
<td>Gilan</td>
<td>Razi</td>
<td>2005</td>
<td>Assistant professor: 5, Associate professor: ---, Professor: 1, Academic staff: 6</td>
<td>2</td>
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<tr>
<td>Isfahan</td>
<td>Al-Zahra</td>
<td>2006</td>
<td>Assistant professor: 6, Associate professor: 3, Professor: ---, Academic staff: 9</td>
<td>2</td>
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<tr>
<td>Ahwaz</td>
<td>Golestan</td>
<td>2008</td>
<td>Assistant professor: 3, Associate professor: 2, Professor: ---, Academic staff: 5</td>
<td>2</td>
</tr>
<tr>
<td>Tabriz</td>
<td>Imam Khomeini</td>
<td>2008</td>
<td>Assistant professor: 3, Associate professor: 2, Professor: 2, Academic staff: 7</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 1. Gastroenterology and hepatology programs in Islamic Republic of Iran, 2008.
graduates in gastroenterology returned to Iran. The primary activities in this respect commenced in 1952 with participation of the honorable colleague M.A. Gharbi.11,16

In 1952, some gastroenterologists thought about the idea of establishing a gastroenterology association. Y. Shahrdar had a prominent role in its initiation. He began the first sessions with few colleagues in his own house in Tehran, which then continued by monthly sessions in other members' homes. The first sessions were held with attendance of 24 members. In these sessions that usually lasted about three hours, the members presented the medical problems of their patients for discussion, and at the end of sessions summaries of newly published articles in gastroenterology journals were discussed. The permanent members of the association included Y. Shahrdar (the secretary), M. Azar, F. Farzad, H. Etemad, Mazaheb, Hanjan (surgeon), A. Maleki (radiologist), N. Nami, Kavousi, M. Hakim, and M.A. Gharbi.

Some worldwide famous experts such as Professor Lamblen, Professor Charles Debrie', and Professor Katlen Sheri Giheh (radiologist interested in small intestine radiology) were invited for scientific sessions of this association. This group developed a good relation with French Association of Gastroenterology. However, they were not able to register the association in the country legally because of bureaucratic obstacles, so, the activities ceased for 10 – 15 years since 1960.

The second efforts began after 1974, by M. Azar, and his colleagues including F. Farzad, J. Khodadoost, M.A. Rashid-Mohassel, Y. Jalali, and S.H. Mir-Madjlessi. They organized multiple sessions at the site of Iranian Medical Council and tried to establish a gastroenterology association, but again because of existing obstacles they could not succeed.

In 1979, some gastroenterologists including J. Khodadoost, S. Mobarak, A. Saberi, H. Makipour, A. Shafii, F. Navab, M. Shamseczad, and S.H. Mir-Madjlessi started to hold monthly scientific sessions at the Library of Tehran Clinic Hospital, which have continued up to now. Those sessions accounted as a core for formation of the unofficial Iranian Gastroenterological Association. The members elected J. Khodadoost, S. Mobarak, and M. Shamsizad as the Board of Directors, and M. Shamsizad as the Directress general. They published a periodical bulletin in gastroenterology for the first time. They published the first issue of this bulletin in November 1980, and the second to fourth issues in March, June, and October 1981, respectively. This group led some scientific symposia in Tehran University as well, but with emigration of some members to abroad their activity stopped.

After inauguration of the Gastroenterology Department in Shariati (former Dariush Kabir) Hospital in 1974, and establishment of the weekly regular clinicopathologic conferences under supervision of S.H. Mir-Madjlessi, an important forum for the discussion about the gastroenterology and hepatology was formed. Finally, with the efforts of the first and second generation of gastroenterologists, the Iranian Association of Gastroenterology and Hepatology (IAGH) was established formally in 1991. The first board of directors of the IAGH were S.H. Mir-Madjlessi (the director general), A. Shafii, R. Aghazadeh, R. Malekzadeh, and M. R. Zali.

The second election of board of directors of IAGH was done in 1995, with participation of 94 members (72 principal and 22 allied members). The IAGH was accepted as a member of Organization Mondiale de Gastroenterologie (OMGE)/World Gastroenterology Organization (WGO) in 1995.

The last election of the association was performed in 2008. R. Malekzadeh, S.H. Mir-Madjlessi, R. Aghazadeh, N. Ebrahimi-Daryani, S. Naseri-Moghaddam, A. Pourshams, M. Nassirir-Toosi, and S. Merat were elected as the board of directors and S.H. Mir-Madjlessi, and Reza Malekzadeh were elected as the President and Secretary general, respectively. Currently, the IAGH has more than 750 members of whom 300 are permanent gastroenterologists and the remaining are internists with endoscopy certification from IAGH.

With the efforts of S.H. Mir-Madjlessi, the license for publishing a gastroenterology journal named "Govaresh" was obtained from the Ministry of Culture and Islamic Guidance. The Board of Directors of the journal elected S. Massarrat as the editor-in-chief of the journal in 1995. This Persian-language journal has been published regularly till now and was approved as a scientific journal by the Ministry of Health and Medical Education since 2006. Recently the license of an English-language journal was obtained from the Ministry of Culture and Islamic Guidance and it will be published with collaboration of Shiraz University
of Medical Sciences in the near future.

Some of the main activities of the IAGH can be categorized as follows:

1- Holding the Iranian Congress of Gastroenterology and Hepatology, from 1999 (Table 2).

2- Publication of Govaresh Journal in Persian language.

3- Collaboration in teaching and evaluation of endoscopic skills for internists who like to be trained in upper gastroenterology endoscopy and sigmoidoscopy procedures. This program is providing in 10 subspecialty centers over the country and more than 156 members have been trained or evaluated and certified for this purpose up to 2008.

4- Public promotional activities and collaboration with the Ministry of Health and Medical Education for the National Neonatal HBV Vaccination in 1996, and adulthood vaccination in 2007.

5- Preparing the guideline for management of hepatitis B and C, and H. pylori eradication for practicing physicians in collaboration with Ministry of Health and Medical Education.

6- Participation in promoting public education about gastrohepatic diseases in collaboration with Iranian television, radio, and print media.

7- Preparing patients' educational pamphlets for gastrointestinal diseases to be used by members in their clinical practice.

8- Regular monthly teaching sessions for continuous medical education of gastroenterologists. Multiple conferences and workshops have been organized by the IAGH board of directors, such as biliary ducts diseases (1992), esophageal benign tumors (1993), practical endoultrasoundography (1994), esophageal cancer (2002), and nursing in endoscopic wards (2001).

9- Collaborative activities with the Iranian General Medical Council for supporting and improving the health status in the country.

**Conclusion**

The establishment of gastroenterology and hepatology subspecialty training program and IAGH were two major steps forward in development of gastroenterology and hepatology in Iran. We now are witnessing a high-quality medical care for patients with gastrointestinal and liver diseases almost all over Iran. Great advances have been achieved in the healthcare system provided by the governmental and private sectors in the last two decades. By the efforts of the first and second generation of gastroenterologists, the quality and quantity of educational and training programs have been improved dramatically. We need a well-designed strategic plan for attracting participation of the recently-trained third generation of gastroenterologists for more improvements in educational activities, collaborative translational research programs, and healthcare standards in the near future.

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