

Sub-specialty Training of Endocrinology in the Islamic Republic of Iran: Estimating the Need for Endocrinologist Training

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Abstract

Endocrinologists contribute to the care of sizable populations with diabetes, thyroid disorders, obesity, metabolic syndrome, osteoporosis, dyslipidemia, pituitary disease, adrenal disease, male and female reproductive disorders and menopausal women. In addition, the trend of prevalences of endocrine and metabolic disorders show that these diseases are highly prevalent, with none becoming less common; on the contrary, diabetes and obesity are the great epidemics of the third millennium. Based on the number of hospital beds, required office-based services, trend of endocrinology diseases, current prevalence of this disease, an estimated 860 endocrinologist are needed while at present there are only 146 adult endocrinologists are practicing. Efforts are urgently needed to find solutions for this gap in the endocrinology workforce if quality services is to be offered.

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Introduction

History has repeatedly acknowledged the contributions of Iranian scientist to mankind. The advent of Islam and its teachings underscored the vitality of knowledge to progress and fostered advances in various fields of sciences. The progress was made possible by the incentive to learn and achieve, a rich culture, availability of libraries with references of Islamic medicine, the integration of various schools of thought, and development of medicine-related literature and Islamic beliefs motivating physicians and their thirst for knowledge. In the

renaissance of science in Iran (1), which followed the great Islamic Revolution in 1979, the science of endocrinology progressed to incredible levels, with manpower training and education, increase in the number of medical facilities and hospitals, marked improvement in medical care and management of patients, and progress in epidemiological, clinical and basic endocrine research. All these have helped raise the ranking of Iranian endocrinology, and its worldwide recognition is reflected by the number of publications and presentations in international forums and requests for consultation in international councils (2).

Need to endocrinologist services

Endocrinologists contribute to the care of sizable populations with diabetes, thyroid disorders, obesity, metabolic syndrome, osteoporosis, dyslipidemia, pituitary disease, adrenal disease, male and female reproductive disorders and menopausal

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women (3). From epidemiological studies in Iran, one can estimate that there are 3-4 million diabetics (4), 4 million with thyroid diseases (5), 3 million with osteoporosis (6), 11 million with overweight and 6 million with obesity (7), collectively representing 27 million people. Furthermore, endocrinologists contribute to the care of patients with metabolic syndrome (8) and pituitary, parathyroid, adrenal, female and male reproductive disorders and postmenopausal women. It is evident that, although not every one of these individuals requires an endocrinologist, it should be kept in mind that the trend of medical care is clearly towards the evidence-based need for subspecialty care. In addition, the trend of prevalences of endocrine and metabolic disorders show that these diseases are highly prevalent, with none becoming less common; on the contrary, diabetes and obesity are the great epidemics of the third millennium (9). Osteoporosis is also increasing in frequency as the young population of Iran ages. More cases of other endocrine diseases in Iran, such as thyroid cancer, are being also increasing and detected more frequently.

Sub-specialty training

There was no sub-specialization of internal medicine in Iran until the first half of the 20th century. From 1950 to 1970, a few sub-specialists returned from Europe and USA. Few internists with interest in endocrinology and 6 foreign-trained sub-specialists in endocrinology were in charge of the education of this division of internal medicine in the medical schools of Shiraz, Tehran, Mashhad university. The establishment of sub-specialty training in endocrinology and metabolism in 1985 was the major step in the advancement and progress of this sub-specialty.

Established in 1985, six years following the Islamic revolution, the sub-specialty program in endocrinology and metabolism, is today one of the most successful programs. Being the first of its kind in the I.R. Iran (2), to date, 132 sub-special-

ists have graduated and 38 fellows are presently active in this program. The training has successfully supplied faculty staff in endocrinology and metabolism to 32 universities of medical sciences throughout the I.R. Iran. The number of sub-specialists in endocrinology in Iran has grown from 14 to 146 in the last 20 years.

Initiated by Dr. F. Azizi in the Talegani Medical Center, Shaheed Beheshti University in 1985, Sub-specialty training programs in endocrinology and metabolism were expanded to Shiraz, Mashhad, Tehran, Isfahan, Tabriz and Iran medical schools between 1991 and 2007.

Objective and curriculum. The aim of this subspecialty program is the training of board-certified internists in the field of endocrinology and metabolism in areas of education, research, and patient management in accordance with the needs of the Iran. The fellowship program in endocrinology and metabolism can be completed in 24 months. Fellowship begins on October 10th (Mehr the 1st) of each year.

The subspecialty program in endocrinology and metabolism offers the trainee an excellent opportunity to care for a large number of patients with diverse endocrine pathology. Fellows assume direct responsibility in diagnosis and management of hospitalized patients with endocrine disorders and those attending endocrine clinics. Rotation to pediatric endocrinology, design and implementation of at least one research study, attending lectures, seminars and workshops in the areas of principles of laboratory tests for hormone studies, endocrine imaging, genetics, immunology, principles of nutrition, biostatistics and research methodology are other activities during sub-specialty training. All endocrinology fellows are required to attend endocrine laboratory and nuclear medicine department for at least 50 hours during their clinical training to become familiar with the principles of laboratory evaluations in endocrinology.

Much of the second year of the program is spent

in research training. Trainees will take part in laboratory or clinical research. The investigations are performed under supervision of one or more faculty members. Clinical research studies can be designed and implemented in the fields of diabetes and its complications, lipids, thyroid disorders, metabolic bone diseases, pituitary, adrenal and parathyroid disorders, reproductive endocrinology and endocrine neoplasia. Epidemiologic investigations can also be carried out on endocrine-related problems. Research studies are performed in individual hospitals and in the affiliated endocrine research centers. As a trainee advances, the development of independent ideas and the art of designing proposals and writing grants are emphasized so that upon completion of the training program, the individual is capable of pursuing an independent academic career.

Does the training fulfill demand for endocrinologists?

In the Islamic Republic of Iran, there are approximately 850 hospitals, many of which, in particular 410 hospitals with ≥ 100 beds, require at least one full-time endocrinologist; needless to say, some large teaching hospitals may need 5-10 endocrinologists. Therefore, it is estimated that nationwide such hospital responsibilities will require approximately 700 endocrinologists.

In addition, there are many solo endocrinology and diabetes practices; private practice slots are difficult to quantify and may account for 160 endocrinologists, 8 for each of the large provinces and 4 for each of the smaller ones. Thus, if one adds up the number of hospital-based and private practice positions, there is a need to have 860 positions available for clinically trained MD endocrinologists in the Islamic Republic of Iran for providing a good endocrinology services. This estimate does not take into account the number of endocrinologists who decide to migrate or may choose to work only part-time.

According to records of the Iran Endocrine so-

ciety, there are currently 146 adult endocrinologists, four fifths of whom were trained in medical schools of the I.R. Iran. Half of all endocrinologists have been trained in one center, the Department of Endocrinology, Taleghani Medical Center, Shahid Beheshti University of Medical Sciences, Tehran. Their average age is 40 years. Almost 90% of them are in teaching positions conduct research, and provide clinical care, some being involved in administrative work as well. The majority of Iranian endocrinologists work in university hospitals and medical centers in the morning, providing, teaching clinical care and conducting research; they, however, visit patients individually in their private clinics in the afternoon.

There are 7 accredited universities for M.D. endocrinology fellowship in the I.R. Iran, which accept 20 fellows each year (10). The number of yearly admissions has increased from 2 in 1985 to 4 in 1991, 12 in 1999 and 20 in 2008. At the same time, the numbers of fellowship candidates seeking to enter these training programs have a variation of 26-42 each year. Endocrinology has been one of the few subspecialties of internal medicine that has had more candidates than fellowship positions available. Even with the new regulations that oblige internists to practice 3-5 years before applying to subspecialty programs, endocrinology has had an adequate demand of candidates, wanting to enter this subspecialty training program.

Discussion

There is an enormous incongruity between the supply and demand for the services of endocrinologists in Iran. Although most of figures for demand are estimates, there appear to be only less than one sixth the required supply of endocrinologists to fill the positions needed in Iran. Disease prevalence, population growth and patient expectation trends will increase requirement for endocrinology care in coming years. Obviously, the addition of only

20 graduate endocrinologists annually, entering the job market, will fall far short of fulfilling the need. It is estimated that by 2021, the population of the country may reach 90 million, at which time the number of endocrinologists needed will reach 1050 positions, whereas with the present endocrinology fellowship positions, we train only 260 new endocrinologists. Therefore, in the year 2021, the number of endocrinologists in Iran will reach 370, still approximately 790 short of the number needed in the country.

The figures presented in this manuscript are underestimations. We have projected 1050 positions for our 90 million population in 2021, a rate of 1 endocrinologist for over 85,700 population; while in the United States, there are 5341 practicing M.D. endocrinologists for less than 300 million population, a rate of approximately 1 endocrinologist for 56,000 population. Even with this rate, it is alleged that majority of rural and suburban regions in the United States have little or no access to endocrinologist (11).

Efforts are urgently needed to analyse these estimates in greater details, to emphasize the criticality of the dilemma to the public and the government, and to identify solutions to avert the enormous consequences that the shortage of this and other subspecialty programs may have for public health.

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