

Accredited Adult Endocrinology Subspecialty Training Programs in Iranian Universities

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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.¹ Although endocrinology training began 22 years ago in the I.R. Iran, the supply and demand related issues surrounding clinical practice in endocrinology are relatively unknown. It is the purpose of this paper to address these issues and to recommend further actions needed in relation to endocrinology training.

History

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-specialists have graduated and 38 fellows are currently active in this program. The training program has successfully supplied faculty staff trained in endocrinology and metabolism to 32 universities of medical sciences throughout the I.R. Iran, increasing

the number of sub-specialists in endocrinology in Iran from 14 to 146 in the last 20 years.

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

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. The program includes: 1) Clinical training imparted under the supervision of faculty members, in which fellows enrolled are required to assume direct responsibility in the diagnosis and management of hospitalized patients with endocrine disorders and those attending endocrine clinics. 2) Rotation to pediatric endocrinology. 3) Design and implementation of at least one research study. 4) Lectures, seminars and workshops in the areas of: a) Principles of laboratory tests for hormone studies b) Endocrine imaging c) Genetics d) Immunology e) Principles of nutrition f) Biostatistics g) Research methodology. 5) All endocrinology fellows are required to attend the endocrine laboratory (hormone laboratory, pathology, cytology) for a minimum of 50 hours during their clinical

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cal training to become familiar with the principles of laboratory evaluations in endocrinology. 6) To familiarize themselves with principles of the use of radioisotopes in diagnosis and treatment, all fellows are required to attend the nuclear medicine department for at least 50 hours during their clinical training.²

Supply

To date, in 2009, according to records of the Iran Endocrine society, there are currently 146 adult endocrinologists, four fifths of whom have been trained in medical schools of the I.R. Iran; half of these have been trained in one center, the Department of Endocrinology, Taleghani Medical Center, Shahed Beheshti University of Medical Sciences, Tehran; with an average age of 40 years, almost 90% of them hold 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 in the afternoon; they, however visit patients individually in their private clinics.

Currently in the I.R.Iran,⁷ universities offer accredited M.D. fellowship programs, which enroll 20 fellows annually. The number of yearly recruits increased from 2 in 1985 to 4 in 1991, 12 in 1999 and 20 in 2008, with the numbers of fellowship candidates, varying between 26 to 42 each year. Endocrinology has been one of the few subspecialties of internal medicine that has had more candidates than fellowship positions available. Despite the new regulations that oblige internists to practice 3-5 years before applying to subspecialty programs, endocrinology has had an adequate demand for candidates, wanting to enter this subspecialty training program.

Demand

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, larger teaching hospitals may need upto 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, 860 positions need to be available for clinically trained MD endocrinologists in the Islamic Republic of Iran. This estimate does not take into account the number of endocrinologists who decide to migrate or may choose to work only part-time.

The current demand could also be estimated by looking at the numbers of Iranian patients with endocrine and metabolism disorders; from epidemiological studies in Iran, one can estimate that there are 3-4 million diabetics,³ 4 million with thyroid diseases,⁴ 3 million with osteoporosis,⁵ 11 million with overweight and 6 million with obesity,⁶ collectively representing 27 million people. Furthermore, endocrinologists contribute to the care of patients with metabolic syndrome⁷ 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 towards the clear 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 major epidemics of the third millennium.⁸ 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 also being detected more frequently.

Discussion and Recommendations

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 appears to be only less than one sixth the required supply of endocrinologists available to fill the positions needed in Iran. Disease prevalence, population growth and patient expectation trends will increase requirement for endocrinology care in the coming years. Obviously, an annual addition of just 20 graduate endocrinologists, entering the job market, will fall far short of the demand. It is estimated that, the population of the country may reach 90 million by 2021, at which time the number of endocrinologists needed will reach 1050 positions, far in excess of current endocrinology fellowship positions, which train only 260 new endocrinologists. In the year 2021, hence the number of endocrinologists in Iran will reach 370, still approximately 790 short of the number needed in the country.

What should be done to bridge the gap between the supply and the demand? Expansion of endocrinology fellowship programs requires increasing the number of internist candidates seeking to enter accredited endocrinology training programs. Although there is a lack of similar studies in other subspecialties, the author believes that a similar demand exists for most other subspecialty training programs. Therefore, it is advisable to increase the number of admissions from 213 to 450 yearly for internal medicine training. It is noteworthy that more than 12000 physicians compete each year for approximately 1732

residency positions in all branches of clinical speciality programs⁵ and many seek residency programs in internal medicine. It may be estimated that by increasing the number of admission of residents for internal medicine speciality, after 4 years, the number of graduate internists will most probably be enough to supply the increase accredited endocrinology and other subspecialties fellowship slots. Meanwhile, during the next four years, existing programs will be expanded and more training endocrinology fellowship programs in some universities having the potential (e.g. Ahvaz, Rasht, Ghazvin, Zanjan, Kerman, Gorgan, Sari, etc ...) might be accredited.

The figures presented in this manuscript are underestimations. We have projected 1050 positions for a 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 an endocrinologist.¹

Efforts are urgently needed to analyse these estimates in greater detail, 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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