



Endocrinology and Metabolism Research Institute from inception to maturity: an overview of 25-year activity

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Abstract

Endocrinology and Metabolism Research Institute (EMRI) was founded in 1993. EMRI progressed step by step from inception and reached to its maturation during the past 25 years. EMRI has expanded and progressed in different aspects including human resources and infrastructures (laboratories and new technologies) and has obtained the first rank in the country in endocrinology research. It has also collaborated with regional and international organizations such as World Health Organization (WHO), International Osteoporosis Foundation (IOF), and American Association of Clinical Endocrinologists (AACE). This article provides an overview of EMRI activities during a quarter of a century.

Keywords EMRI · Endocrinology · Metabolism · Diabetes

Introduction

Endocrinology and Metabolism Research Institute (EMRI) was founded for the first time 26 years ago in 1993 in a small room in Endocrine Ward at third floor of Dr. Shariati Hospital

as one of the five research centers founded in the country at that time and entitled as “Endocrinology and Metabolism Research Center” (EMRC). The research center was founded by four top Endocrinologists university staffs in the country.

Eight to nine years earlier than establishment of EMRI (1984–1985), Endocrine ward of Dr. Shariati Hospital had been launched jointly with gastrointestinal ward with 9 to 11 beds and in the next years they increased to 22 to 24 beds (in 1995). Therefore, a primary background had been provided for research. Following an increase in the numbers of bed for patients with diabetes, patients with thyroid and hypothalamic disorders were admitted in the ward as well.

After a few years, thyroid cancer registry was launched in endocrine department and this department became a referral center for Cushing Disease. Currently, endocrine ward is working jointly with gastrointestinal ward and admits patients with different endocrine disorders. The purpose of this article is to review the activities of the Endocrinology and Metabolism Research Institute over a quarter of a century.

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First Decade (1993–2002)

After establishment, EMRC started research with small epidemiological retrospective studies using hospital records with only one research fellow. Most hospital records were

incomplete at that time and there was no complete archive in the hospital.

At the beginning of EMRI work, it faced with several limitations including space, budget and staff. When EMRI started, only five university staffs subspecialist in endocrinology were in EMRI and in the next years by graduation of more endocrinologists and joining to EMRI, the number of staffs increased. The first EMRI budget was allocated in 1997 by the University (governmental). The EMRI budget before that was provided by the institutes out of university.

Two years after establishment (1995), the center received official approval from the Ministry of Health and Medical Education. At the same year the center moved to a new place with 2–3 rooms out of Endocrine ward at the 5th floor of Dr. Shariati Hospital near the hormone and biochemical laboratory. In this new place, the center expanded for the first time and the number of research fellows and staffs increased to six to seven.

Seven years later (Oct 2002), by providing a proper space at the same flat, a large new building was built and prepared and EMRI moved to the new building. This building contained a long corridor with multiple rooms that different research units were deployed there and required manpower was employed gradually.

To expand research activities with limited budget and for more productivity, EMRI recruited young motivated newly graduated physicians covered by the Human Resources Project (the Ministry of Health and Medical Education) with minimum payment that was supported by the Ministry. By this policy, EMRI in order to advance the goals, used the potential of motivated young graduated human resources appropriately and expanded research activities.

Research products of EMRI in the first decade of its activity were limited [1–7] and most of them published in local journals with Persian language (Fig. 1). In this decade, most activities were focused on building of infrastructures. Activity of EMRC in different subjects during those years was categorized in separate small research teams.

The last two years of first decade (2001 and 2002) was associated with significant achievements that had decisive role in the future of EMRI. These important decisive achievements were as follows:

Administrative achievements

Evaluation of research centers launched by the Ministry of Health and Medical Education was one of the administrative events. At the first year of assessment, EMRI ranked 6th in Razi Festival. By further progress, EMRI obtained first rank in Razi Festival in the next year. Afterward up to now (except one year), EMRI has obtained first rank in the country consistently.

Allocation of an independent budget line to EMRI for the first time by the ministry was another important event in the same years that was the main achievement of EMRI.

Research achievements

To facilitate multicenter studies and expand national research in the country, EMRI established “National Diabetes Research Network” (NDRN) [8] (<http://emri.tums.ac.ir/DMNet>) and “Iranian Osteoporosis Research Network” [9] (<http://emri.tums.ac.ir/OsteoNet>) that were endorsed by the ministry of health in the same years (2002). By cooperation

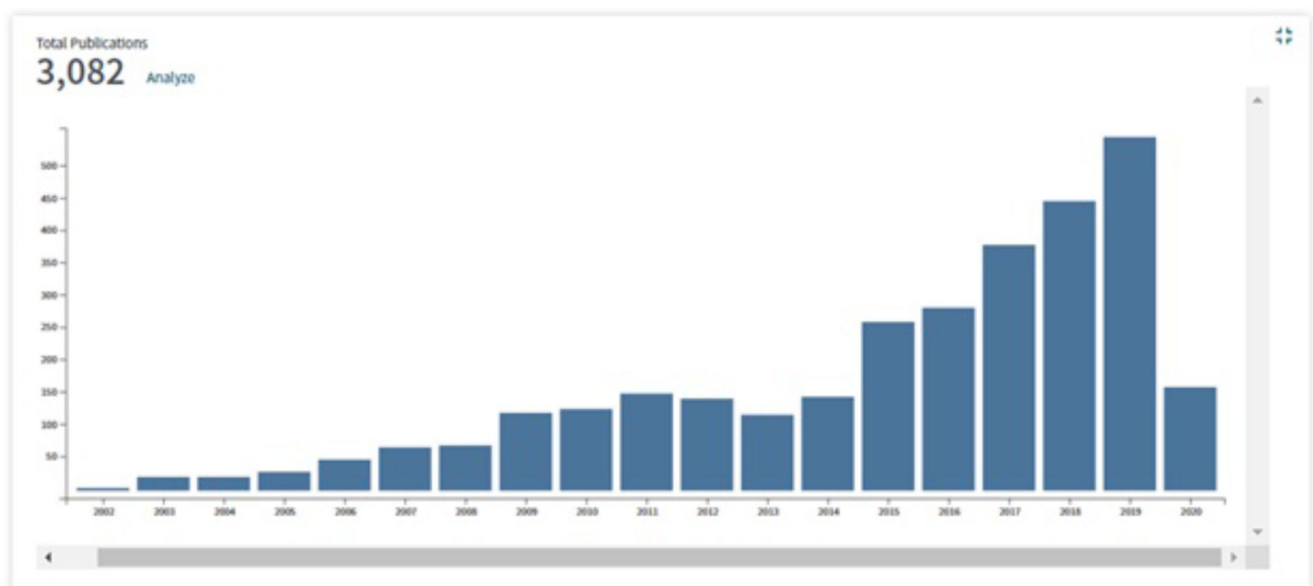


Fig. 1 Number of EMRI publications during the past 25-years

of NDRN, local diabetes guideline was prepared and released for the country [10]. Currently, more than 20 universities all over the country are member of these networks.

At the same time, in the field of research expansion and internationalization, EMRI was approved as a collaborating center of World Health Organization (WHO) for diabetes and osteoporosis. Collaboration with International Osteoporosis Foundation (IOF) was also started.

Education achievements

First EMRI journal entitled “Diabetes and Metabolic Disorders” was published for the first time in 2001 in Persian language in the first years and then changed to English in the next years and published by Springer. Notably, the journal has obtained many important achievements among local journals (Fig. 2).

Medical services achievements

Simultaneously (2001–2002), diabetes clinic affiliated to EMRI was launched in Dr. Shariati hospital to provide medical services for diabetic patients and to provide a research platform for EMRI as well [11–14].

Second decade (2003–2012)

The second decade was the beginning of the EMRI jump and was associated with significant advances. At the beginning of second decade of activity, EMRI infrastructure, facilities, and human resources were acceptable and the related process was ongoing. By availability of such potentials in this space, research development was begun and accelerated. During the second decade of EMRI activity, improvement continued.

Following moving to new building and expansion of EMRI infrastructures and staffs, organizational chart of EMRI was developed and EMRI activities were categorized into education, research, administrative, and support sections.

Administrative and support section

EMRI in 2010 promoted to Research Institute and research activities were organized in three main areas in three research centers including “Diabetes Research Center”, “Osteoporosis Research Center” and “Endocrinology and Metabolism Research Center”. Other related research topics out of the aim and scope of the above mentioned research centers were considered as research groups and units within these research centers such as immunogenetic group [15], fasting group [16], nutrition unit [17, 18] and so on.

Training Ph.D by Research students was started by EMRI for the first time in the country in 2010 and since then annually few talented interested eligible students are selected and admitted by EMRI for this program. These students have conducted practical research projects that lead to valuable outputs [19–24].

In 2012, EMRI promoted to Research Institute with three Research Institutes and nine research centers (three centers in each institute). Three research institutes were including Endocrinology and Metabolism Molecular -Cellular Sciences Institute, Endocrinology and Metabolism Population Sciences Institute and Endocrinology and Metabolism Clinical Sciences Institute.

Research Centers affiliated to Endocrinology and Metabolism Molecular -Cellular Sciences Institute was including Biosensor Research Center, Obesity and Eating Habits Research Center and Metabolic Disorders Research Center.

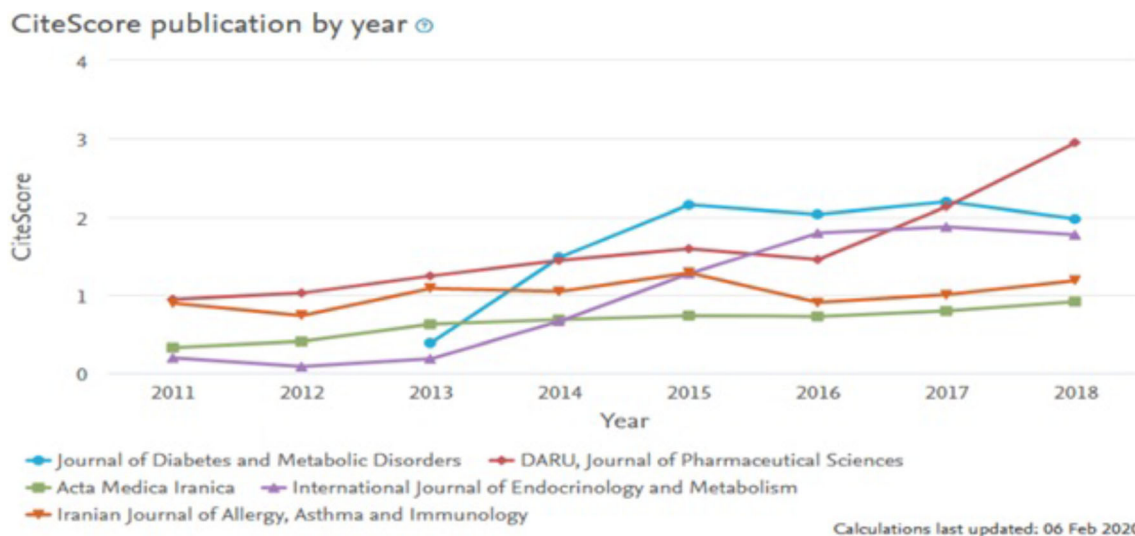


Fig. 2 Comparison of Journal of Diabetes and Metabolic Disorders (affiliated to EMRI) status with other local journals

Chronic Diseases Research Center, Elderly Health Research Center and Non-Communicable Disease Research Center were affiliated to Population Sciences Institute. Research centers affiliated to Clinical Sciences Institute were including Diabetes Research Center, Osteoporosis Research Center and Endocrinology and Metabolism Research Center.

Launching Population Sciences Institute was a background for conducting population-based studies. By this background, EMRI collaborated in Bushehr Elderly Health Cohort for the first time in 2012 [25, 26] and after that started and contributed in other population-based cohorts including IMOS [27], CASPIAN study [28, 29], STEPS [30, 31] and so on.

During the last years of second decade diabetes clinic expanded to a sub-specialty diabetes clinic with multidisciplinary approach and moved to a new independent building.

Research section

The main activity of EMRI was in research section as its intrinsic duty. During this period, an important policy in the research section was providing facility for theses of under graduate and post graduate students in the field of medicine that resulted in considerable improvement in research productions [12, 32–36]. Another policy of EMRI in the platform of diabetes clinic was collaboration with medicinal industries and taking research grants to support remarkable projects [11, 37, 38].

At the beginning of second decade, publishing unit was launched in EMRI to provide professional counseling and facility, and to handle and support research product publication. This strategic policy caused a significant growth in research output of EMRI [12, 33, 39].

During this period, staffs in basic sciences were employed by EMRI and following that policy, genetic, cellular, and molecular lab was setup and various molecular techniques including PCR, RT-PCR, epigenetic and methylation tests, etc., were launched. They provided a background for conducting invaluable research projects including genetics, molecular, and cellular studies [19, 40–46]. By these available facilities in EMRI, taking post doc students was started that helped to expand collaborations with other research institutes [47].

After 2008, using available facilities, EMRI moved to high tech research in the edge of the frontiers of knowledge. In 2008, cell therapy project was conducted on patients with diabetes for the first time in Iran [48]. In this study, fetal liver-derived hematopoietic stem cell allotransplantation was performed in a small number of patients with type 1 or 2 diabetes. In the mentioned study, after one year of transplantation, none of the patients became insulin free, transiently, or permanently [48]. Safety of fetal cell transplantation was evaluated three years later

that showed no significant complications and confirmed long term safety [49].

Pancreas transplant project was started for the first time in EMRI in 2010 and first pancreas transplantation was performed [50, 51].

Education section

Educational activities of EMRI in this decade were in the area of professional and public education. Professional medical education was provided by holding local, national, and international workshops, courses, seminars, and congress in the field of endocrinology with special programs in anniversary dates such as World Osteoporosis Day (on October 20 each year) [52] and World Diabetes Day (on 14 November each year) [53]. Moreover, diabetes guideline [10], diabetic foot care guideline (approved by International Working Group on the Diabetic Foot/IWGDF) [54] for physicians, and other care providers were prepared and published.

Patient education was provided for patients with diabetes by local workshops and face to face education as well as general conferences, especially in World Diabetes Day [53]. In addition, many different booklets and brochures as well as guidelines for diabetic patients were published that are updated every few years.

Third decade (2013-to present)

In the third decade of EMRI activity, improvement of infrastructure continued in different areas.

Administrative and support section

Following expanding EMRI activities, six years later than second promotion (2018), three new research centers including Personalized Medicine Research Center, Metabolomics and Genomics Research Center, Cell Therapy and Regenerative Medicine Research Center, and one another research institute (Translational Endocrinology) were added to EMRI with the aim of moving toward high tech molecular and cellular advanced research in the field of endocrinology and multidisciplinary studies and conducting research on the edge of the frontiers of knowledge [55–57].

These new research centers contributed in knowledge production in the field of metabolomics, personalized medicine, and cell therapy, significantly [56, 58, 59] and these progresses still continue in various aspects.

EMRI to extend metabolomics research in recent years has provided infra-structures such as MS/MS for metabolom analysis and has launched Zebrafish Lab as animal model for various diseases and for basic science studies as well.



Fig. 3 Number of publications and citation during the past 25-years by EMRI

Research section

Research output and the numbers of citation increased continuously during a quarter of a century of EMRI activity and reached maximum in 2019 (Fig. 3).

Launching and establishing registry programs for diabetes, thyroid cancer, and pituitary adenoma are examples of EMRI outstanding achievements in the past years that provide a big data for the future analysis of disease progress status and outcome as well.

In the third decade, the collaboration of EMRI with international organizations such as WHO, International Osteoporosis Foundation (IOF), and American Association of Clinical Endocrinologists (AACE) continued and recently it was approved as WHO collaboration center for non-communicable diseases (NCDs). Collaboration with International Working Group on the Diabetic Foot (IWGDF) was also approved in this decade.

Education section

In order to extend diabetes education in national and regional level, Iranian Diabetes academy was launched in EMRI in this decade. Face to face and electronic diabetes education programs were provided for health care providers and patients [60]. Different educational modules for different care of diabetes and its complications as well as for diabetic foot care were prepared and released for professionals and patients that is advantageous in these days of Covid-19 pandemics.

In this decade, in line of WHO program to control NCDs mortality in the world up to 2025, Iran committed to follow WHO program. In collaboration with the ministry of health, EMRI prepared “National Document for Non-communicable diseases (NCDs)” [61] and “Iranian National Service Framework for Diabetes” and clarified the national targets to reach WHO goals in 2025.

In conclusion, research and development is ongoing in EMRI from inception up to present. This path continues with the advancement of research, science, and knowledge and a bright horizon is ahead of EMRI.

Data Availability Not applicable.

Compliance with ethical standards

Declarations Not applicable.

Conflicts of interest Not applicable.

Ethics approval Not applicable.

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