

 <p>ISSN NO. 2320-5407</p>	<p>Journal Homepage: - www.journalijar.com</p> <h2 style="text-align: center;">INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)</h2> <p style="text-align: center;">Article DOI: 10.21474/IJAR01/xxx DOI URL: http://dx.doi.org/10.21474/IJAR01/3952</p>	
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RESEARCH ARTICLE

INTEGRATED AND COMPREHENSIVE CARE OF PEOPLE WITH TYPE 1 DIABETES IN A RESOURCE POOR ENVIRONMENT- ‘INSULIN MY LIFE (IML)’ PROJECT.

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Manuscript Info

Manuscript History

Received: 12 February 2017
Final Accepted: 13 March 2017
Published: April 2017

Key words:-

Insulin my life, type 1 diabetes, children,
resource poor society

Abstract

Pakistan being a representative of a resource poor society with low priority on health related issues like T1DM, faced alarmingly high mortality and morbidity in consequence. Through “IML” project, integrated and comprehensive management is initiated and it is hoped that these subjects will lead a healthy and productive life.

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Introduction:-

The prevalence of diabetes has been escalated in recent past leading to around 400 million people living with this health disorder worldwide. This epidemic not only impend individual's health but also present itself as one of the main barrier to sustainable economic growth (1). Being more prevalent and with more complex pathophysiology, type 2 diabetes is focused primarily worldwide. Nevertheless the subjects with type 1 diabetes are of paramount importance due to their involvement in early life span along with lifelong exposure to complications leading to increased mortality and morbidity in the productive age group of life. These facts suffices the importance of this distinctive type of diabetes as public health issue (2). Developing countries like Pakistan with resource poor environment, lack of education, scarcity of awareness, unaffordability and inaccessibility of insulin and lack of health infrastructure further aggravate the problem (3).

Over the past decade, understanding of the pathognomonic factors and natural history of type 1 diabetes has developed considerably, particularly with regard to its progress and heterogeneity, pancreatic pathology, and epidemiology (4).

The role of poor glycemic control in contributing to chronic complications in type 1 diabetes is beyond any doubt and has been well recognized in epidemiologic studies and prospective clinical trials. The chronic complications are supposed to be mainly related to the extent of and length of exposure to hyperglycemia as evaluated by objective markers of glycemic control i.e. HbA1c. As per the guidelines, standards of care are formulated that are targeted to reduce the incidence and advancement of these complications by introducing early and aggressive treatment aiming to maintain a level of HbA1c as close to normal as possible as shown by the Diabetes Control and Complications

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Trial (DCCT) (5,6). With developments in diabetes care and education, an excellent quality of life and a lifespan approaching that of the normal population can be achieved (7).

Pakistan is a developing country with inadequate resources and varied economic patterns. It has a population of 161.66 million (8), of which 68% live in rural areas, 33% of the population lives below the poverty line and 40% have no access to even basic health services (8). Expenditure on health infrastructure represents 0.7 -0.8% of GDP and 3.5% of total governmental budget expenditure. Pakistan devotes around 30% of health budget on the development of health infrastructure (8). The Government offers support for diabetes as part of the overall health system expenditure but diabetes itself receives a very meager share. Specific funding through international and national collaborators is also very limited (8).

Pakistan has an estimated 6.7 million people affected with diabetes, according to the International Diabetes Federation (IDF) and this number is predicted to increase to 12.8 million by the year 2035 (8,9). Diabetic Association of Pakistan (DAP) has contributed significantly by serving as WHO collaborating center for diabetes and was involved in conducting national diabetes surveys (10-14)

Baqai Institute of Diabetology and Endocrinology (BIDE) was the first to give the concept of multidisciplinary care team and is the pioneer institute in the field of diabetes in Pakistan aiming to provide comprehensive and standardized diabetes care to the diabetic subjects in a resource poor environment. A collaborative study between BIDE and Diabetic association of Pakistan and WHO collaborating center (DAP), was conducted in 2007 to assess the mode of presentation and prevalence of acute and chronic complications in type 1 diabetes mellitus in Pakistan. The study revealed very high complication rate in subjects with >10 years disease duration of T1DM. Among the study subjects, 20% had nephropathy, 42.3% were hypertensive, 17.2% had neuropathy and 25% had developed retinopathy (15). This study was used as a baseline data to explore the reasons for this alarmingly high complication rate. Lack of education, poverty, accessibility and affordability of insulin were found to be among the main determinants especially in rural areas of Pakistan (3). To address the lack of insulin, in 2008 a MOU was signed between DAP and Eli Lilly Pakistan for the donation of 8000 insulin vials among non-affording type 1 diabetic subjects. These vials were distributed through a network of post graduate diploma doctors, trained by BIDE across the Sindh province of Pakistan. During this process, lack of standardized and comprehensive care for type 1 subjects is further identified because of improper health infrastructure. Realizing the need, BIDE with the collaboration of World Diabetes Foundation (WDF) and DAP started a project in 2010 naming "Insulin My Life" (IML) in Sindh Province of Pakistan. The aim of the project were;

- Provision of standardised care for patients with type 1 diabetes by educating doctors and diabetes educators.
- Imparting patient education and provision of free medical supplies including insulin to non-affording patients with type 1 diabetes.
- To create awareness in the community regarding type 1 diabetes.

IML established 34 type 1 diabetic clinics along with the provision of all essential clinical equipment including fundoscopes. The post graduate diploma doctors were further trained in the management of T1DM by the faculty of BIDE. At least one Diabetes Educator for every clinic is also trained for dealing the day to day issues of type 1 subjects.

Through IML, free consultations, medical supplies like vials of insulin, glucometers and strips were provided to non-affording T1D subjects. Worthwhile mentioning that HbA1c testing is also provided free of cost to all subjects two times in a year.

Six hundred and fifty four camps were conducted to create awareness in community for the condition, 300,000 teachers were sensitized not only to understand the condition but specifically to deal with the acute emergencies in children. Education material for T1D subjects, parents and community people were developed in English, Urdu and Sindhi languages. Special camps involving T1D subjects in different healthy activities like drawing, painting, sports and games were organized.

Awareness through print and electronic media were also targeted and 30 FM radio programmes along with 18 TV programmes were recorded and telecasted. Advertisements and public service messages were printed in all leading newspapers with English, Urdu and Sindhi languages. Arrangement of annual T1D awareness walk is also ensured on the event of world diabetes day. A dedicated website <http://www.insulinmylife.com> was designed by IML to make all the relevant information available electronically.

The “Life for a child program” (LFAC) of IDF has very kindly extended its support to IML in 2011. Now insulin, glucometers, strips, HbA1c testing, education material and research related activities is also being sponsored by LFAC.

With the collaboration of Health Research Advisory Board, BIDE has recently initiated the Diabetes Registry of Pakistan (DROP) under the supervision of Prof. Abdul Basit and Dr. Asher Fawwad to quantify the magnitude of the national disease burden. For type 1 diabetes, DROP-1 has already started gathering the data under the leadership of Prof. Muhammad Yakoob Ahmedani, Principal Investigator of IML.

IML presented five research abstracts at International and National platforms by using the collected data. A multicenter and multinational immunological and genetics study is in process to report this data for the first time from this part of the world. Data analysis for a research publication is in process to ascertain the impact of IML project through comprehensive and standardized care on the complications outcomes. Based on the findings, further new milestones will be set for the future to improve the condition further.

International Society for Pediatric and Adolescent Diabetes (ISPAD) awarded travel grants to Dr. Asher Fawwad, IML co-investigator, for two consecutive years (2015-16) to participate in annual ISPAD events to get hands on experience of managing T1D from researchers and specialist clinicians from all around the world.

T1D subjects enrolled in IML, participated in international Art Competition “My Life with Diabetes” and win top prizes in their respective categories (16,17)

The IML program will continue to strive for the standardized care for people with type 1 diabetes living in Pakistan. The project has already started its working in other parts of the country to disseminate its facilities across the country. Sustainability of this program will be ensured through the support and sponsorship from BIDE, DAP, LFAC and local philanthropists and pharma industry. It is hoped that with all these efforts and through integrated and comprehensive care, the productivity and quality of life for type 1 diabetic subjects will be at par to the otherwise healthy population.

Acknowledgement:-

We acknowledge the support of World Diabetes Foundation (WDF), Life for a Child program (LFAC), International Society for Pediatric and Adolescent Diabetes (ISPAD) and Baqai Institute of Diabetology and Endocrinology (BIDE).

Declaration of Competing Interests:-

Nothing to declare

Ethics Policy:-

Ethical approval to conduct this education and training program had been granted by the Research Ethics Review Committee of Baqai Institute of Diabetology and Endocrinology (BIDE). The written consent was taken from the participants/parents before including the project.

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