Comprehensive health care for people with type 1 diabetes in a resource constraint society: a three year follow-up

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Background

Unfortunately, the majority of people with type 1 diabetes, living in developing countries do not have access to the standardized care along with life-saving medicines they need. As a result, many of them die, others develop severe complications. The aim of the study was to observe the effectiveness of standardized and comprehensive care for the non-affording people with type 1 diabetes.

Methodology

This community based observational study was part of "Insulin my life" a collaborative project of World Diabetes Foundation (WDF), Life for a Child program (LFAC) and Baqai Institute of Diabetology & Endocrinology (BIDE), carried out in the province of Sindh, Pakistan from February 2010 to February 2013. Ethical approval was obtained from Institutional Review Board (IRB) of BIDE. All people with type 1 diabetes who attended the Outpatient department of BIDE were included after obtaining informed consent. Electronic database was designed for demographic, biochemical, anthropometric and medical examination. Monthly consultation with a team of physician, diabetes educator and dietitian along with HbA1c (every 6 month) was part of the standardized health care. All the recruited people with type 1 diabetes were provided insulin, glucometer, glucose measuring strips and advised to monitor their blood glucose at home. Records of self-monitoring of blood glucose (SMBG) and complications like symptomatic hypoglycemia and hyperglycemia was also observed. A website for the project was developed and a 24-hour telephonic helpline service was established for the people with type 1 diabetes. SPSS version 20 was used for data analysis.

Results

Baseline characteristics

Variables	0-5 years (n = 29)	6-12 years (n = 115)	13-18 years (n = 126)	≥19 years (n = 151)
Male	12 (41.4%)	54 (47%)	71 (56.3%)	81 (53.6%)
Female	17 (58.6%)	61 (53%)	55 (43.7%)	70 (46.4%)
Age at diagnosis (years)	3.44 ± 1.38	7.88 ± 2.49	12.50 ± 4.43	17.89 ± 6.07
Age at recruitment (years)	3.65 ± 1.27	9.09 ± 1.98	15.47 ± 1.71	24.10 ± 4.32
Duration of diabetes (years)	0.21 ± 0.41	1.21 ± 2.30	3.0 ± 4.16	6.21 ± 6.22
Weight (kg)	13.90 ± 2.61	28.19 ± 13.02	42.67 ± 10.66	53.19 ± 10.35
HbA1c (%)	11.68 ± 1.95	11.43 ± 2.40	11.69 ± 3	10.38 ± 2.71
Serum Creatinine (mg/dl)	0.64 ± 0.19	0.75 ± 0.2	0.92 ± 0.42	0.9 ± 0.29
Serum Cholesterol (mg/dl)	-	150.76 ± 29.75	164.09 ± 61.38	161.44 ± 26.84
Serum Triglyceride (mg/dl)	-	89.2 ± 46.75	113.82 ± 98.52	88.26 ± 55.96
High Density Lipoprotein (mg/dl)	-	40.05 ± 12.38	41.77 ± 11.55	40.92 ± 10.82
Low Density Lipoprotein (mg/dl)	-	76.9 ± 21.74	86.32 ± 30.49	96.22 ± 29.16

Data presented as n (%) and Mean ± S.D.
P-value < 0.05 was considered statistically significant

Trends of mean SMBG readings

Conclusion

Provision of standardized and comprehensive health care for people with type 1 diabetes along with free accessibility of insulin to non-affording people resulted in improvement of their glycemic control. Increasing awareness regarding type 1 diabetes and health care facilities could be supportive and valuable to decrease the complication rate to achieve healthy life with diabetes.

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Frequency of poor glycemic control according to the age groups

Complications rate according to duration of diabetes (≥ 10 years)

Trends of Glycosylated hemoglobin (HbA1c) levels