



LONG-TERM, CAUSE-AND-EFFECT PATTERNS OF MORTALITY IN PATIENTS HAVING TYPE 1 DIABETES IN YOUNG PEOPLE IN PAKISTAN

1Dr. Aymen Shuja Zuberi, 2Dr Moeza Razaq, 3Dr Iqra Hassan, 4Atipan Saimmai, 5Dr Tanveer Ahmad, 6Romaiza

1Care Plus Hospital Islamabad, aymen.zubeiri@gmail.com

2Medical Officer, Civil Medical Officer, CMH Aims, moeza.Razaq@gmail.com

3Department Gynae, CMH Rawalakot, iqraawanhassan@gmail.com

4Faculty of Agricultural Technology, Phuket Rajabhat University, Muang, Phuket 83000, Thailand, atipan.s@pkru.ac.th

5Consultant Urologist, DHQ Hospital Vehari, tanveerkemu@gmail.com

6WMO, Cardiology Deptt, Allamaiqbal memorial teaching hospital Sialkot, romaiza.maqsood9595@gmail.com

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ABSTRACT

Aim:The purpose of this review was to explore long-term, cause-and-effect patterns of mortality in patients with type 1 diabetes in young people in Pakistan.

Methods:Those selected for the survey were diagnosed with type 1 diabetes at an age younger than 18 years between 2018 and 2020. All individuals were followed up on their endurance status up to January 1, 2005. Reasons for death were separated into end stage renal infection (ESRD), severe diabetic complications (ADC), accident/self-inflicted injury, cardiovascular infection (CVD), contaminations, tumors, other (non-diabetic/diabetic) also obscure. Explicit mortality patterns were reported by the following period and year of observation. Our current research was conducted at Mayo Hospital, Lahore from March 2019 to February 2020.

Results: The examination was performed on 1,385 patients and confirmed the endurance of 1,328 of them. The long-term mortality rate (per 100,000 man-years) was 657.4 and the standardized mortality ratio (SMR) was 10.7. In particular, the MRE for long-term development decreased from 19.3 at the 1965-69 determination meeting to 6.6 at the 1975-79 determination meeting. Approximately 40% of those with long-term development under 14 years of age were examined in depth. A comparison of the extent of ESRD transmission among people with 12 to 21 years of development. The longer the duration of follow-up, the lower the mortality due to ADC and the higher the mortality due to cardiovascular disease.

Conclusion:Among Pakistani people who had type 1 diabetes in childhood for more than two years, cardiovascular disease was the leading cause of death, as it was among comparable white people. The longer the duration of diabetes, the more cardiovascular disease should be prevented.



Keywords: Long term effects Diabetes type-1 Mortality Pakistan.

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INTRODUCTION:

The annual incidence of type 1 diabetes mellitus in young people in Pakistan is 3.6 per 100,000, 1/24th of the 58.7 observed in Finland, a country with one of the highest incidence of type 1 diabetes in the world [1]. Whether the low incidence of infection can be associated with underlying conditions that would influence the clinical course of type 1 diabetes is unclear, as there are few population-based studies that explore the long predictions [2]. For this reason, the World Mortality Study in Population-Based Diabetes Epidemiological Research was published in 1989 as an observational study directed to the global community, bringing together diabetes scientists from Finland, the United States, Israel and Pakistan [3]. In 1995, the survey gave its first report showing that Pakistani patients with type 1 diabetes had a much worse prognosis than comparable patients in Finland, the United States and UAE [4], with the most successive reason for their death being end-stage renal disease. The current survey evaluated the most recent information distinguishing life status and explicit cause-and-effect mortality patterns in Pakistan, starting in 2009 [5].

METHODOLOGY:

The survey included members who were diagnosed with type 1 diabetes at <18 years of age between 2018 and 2020; this information was retrieved from two cross-national studies of young people starting diabetes in 1970 and

1981, as described elsewhere. Type 1 diabetes was characterized as requiring the initiation of insulin treatment after diagnosis. People who had their diabetes tested between 1968 and 1972 began to develop diabetes on January 1, 1976, and those who had their diabetes tested between 1975 and 1979 began to develop diabetes on January 1, 1990. All people were alive on the day that development began. This associate included 1,387 patients, 24 fewer than had been assessed in the overview that decided life status in 1997, which can be inferred from a review for misclassification and violation of consideration patterns found in the last ten years. Our current research was conducted at Mayo Hospital, Lahore from March 2019 to February 2020. The rate of partner identification was estimated at 76%, based on the incidence rate of type 1 diabetes revealed (0.9 per 100,000 man-years) during this period. The representativeness of the associate in relation to the objective population is discussed elsewhere. A survey designed to assert a person's basic status was sent to each person joining the physician like a clock (Electronic advantageous material [ESM] survey). All individuals were tracked until March 1, 2020. Any person whose status was unclear was also tracked by library wills or duplicates of his or her family register with the approval of the Ministry of Justice. Endurance status was reported in terms of mortality rate and standardized mortality proportion.



Table 1:

	Diagnosis cohort			Overall
	1965–1969	1970–1974	1975–1979	
<i>n</i>	355	391	329	1,075
Vital status confirmed	96.6 (343)	97.4 (381)	97.0 (319)	97.0 (1,043)
Deceased	37.2 (132)	23.5 (92)	16.7 (55)*	26.0 (279)
Male	50.4 (179)	54.5 (213)	50.5 (166)	51.9 (558)
Caucasian	92.4 (328)	93.6 (366)	91.8 (302)	92.7 (996)
Age at diabetes diagnosis	10.5 ± 4.4	10.8 ± 4.0	11.4 ± 4.0*	10.9 ± 4.2
Mean diabetes duration†	34.6 ± 9.0	32.2 ± 7.3	28.9 ± 4.7*	32.0 ± 7.6
Mean age†	45.1 ± 9.2	42.9 ± 7.8	40.3 ± 5.9*	42.9 ± 8.0
Person-years of follow-up	12,277.6	12,584.8	9,500.7	34,363.1

Data are % (*n*) or means ± SD. * $P \leq 0.01$ for either χ^2 or ANOVA across diagnosis cohort groups. †Type 1 diabetes duration and age at death or last follow-up.

RESULTS:

Of the 1,387 children with type 1 diabetes (559 young men and 845 young women; mean age [\pm SD] at time of discovery, 8.9 \pm 6.2 years), 1,103 were reported alive from 2005 and 228 were followed up. Of the 64 individuals whose status remained unclear, their last reported status before 2005 was used for the survey. The average duration of diabetes was 27.9 \pm 6.5 years, with an average development of 26.5 \pm 8.7 years, and an average age at death of 32.8 \pm 9.6 years. All-cause mortality and MSD The mortality rate (per 100,000 man-years) and long-term developmental MSD were 658.4 and 11.8 (95% CI 9.3, 12.1), separately. The mortality rate was shown to be higher in males

than in females (778.1 vs. 580.5); however, the MRT was lower in males than in females (9.6 vs. 14.3), given that males have a higher mortality rate than the general population. Long-term developmental mortality was significantly improved in the series of contrasting 1975-1979 and 1965-1969 findings (SMR, 7.7 vs. 18.4). Explicit Mortality by Cause and MRE Overall, the leading causes of death are TRI and CVD, followed by CDA (Table 1). In addition, TRI was the most common cause of death in the 1965-1969 data collection, accounting for 43% of all causes of death. Nevertheless, it decreased significantly in the 1975-1979 data collection. In males, the main sources of death were CVD, ADC and infections.

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Table 2:

Outcomes	n	Mortality rate (per 100,000 person-years)*	Standardized mortality ratio*
Japan			
Overall	1,408	607 (510–718)	12.9 (10.8–15.3)
Sex			
Men	566	617 (466–801)	9.0 (6.8–11.7)
Women	842	601 (477–747)	18.5 (14.7–23.0)
Age at diagnosis†			
Prepubertal	965	456 (356–576)	10.8 (8.4–13.6)
Pubertal	443	941 (728–1197)	16.4 (12.7–20.9)
Calendar time period of diagnosis			
1965-1969‡	285	869 (605–1208)	15.7 (10.9–21.8)
1975-1979‡	769	267 (180–381)	6.9 (4.6–9.8)
Finland			
Overall	5,126	352 (315–393)	3.7 (3.3–4.1)
Sex			
Men	2,817	448 (391–511)	3.2 (2.8–3.7)
Women	2,309	238 (193–290)	5.2 (4.2–6.3)
Age at diagnosis (years)†			
Prepubertal age	2,835	278 (234–328)	3.6 (3.1–4.3)
Pubertal age	2,291	446 (383–516)	3.7 (3.2–4.3)
Calendar time period of diagnosis			
1965-1969‡	1,582	243 (184–315)	2.9 (2.2–3.8)
1975-1979‡	1,793	225 (172–290)	3.1 (2.4–4.0)

*Values in the parentheses are 95% CIs. †Prepubertal age <11 years old for women and <12 years old for men; pubertal age ≥11 years old for women and ≥12 years old for men. ‡Follow-up period was limited to 15 years to make the values comparable. Mortality rate and standardized mortality ratios for those with diabetes diagnosed in 1970-1974 are not shown in this comparison, but these patients are included in other analyses shown in this table.

Figure 1:

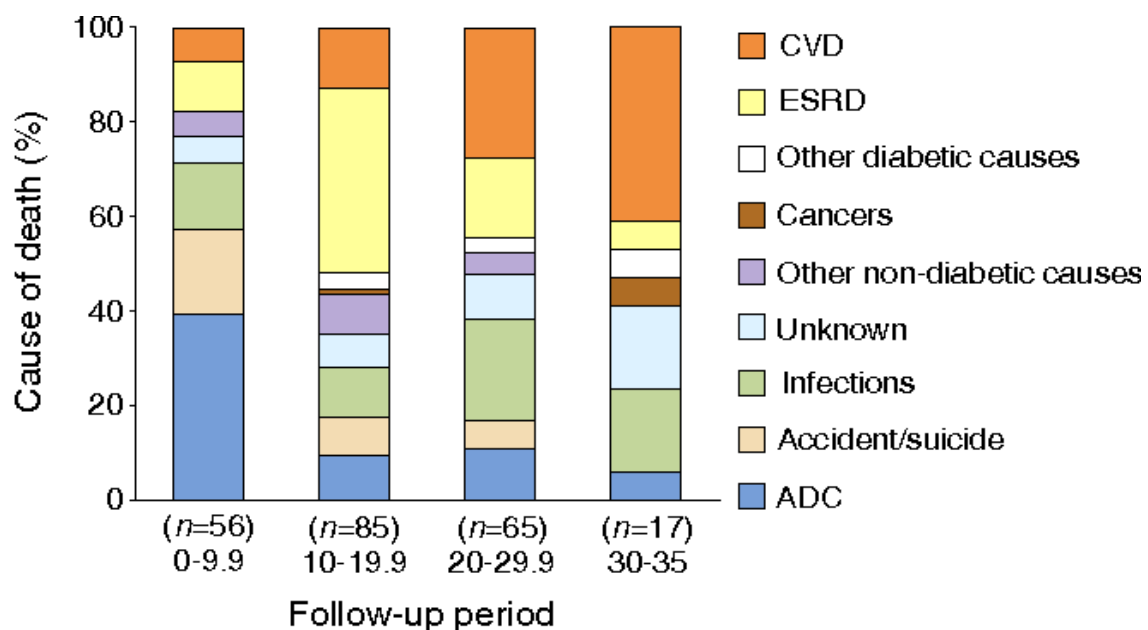


Fig 1 The causes of death according to follow-up period in patients



DISCUSSION:

In our last report in 1991, ESRD and CDA were the leading causes of death, and CVD were infrequent. In any case, current investigations have shown that the longer the duration of development, the higher the level of CVD in all deaths, with CVD becoming the leading source of death in the next 30-year period [6]. The expansion of CVD mortality has also been revealed in the U.S. DERI report. For the general public in Pakistan, the mortality rate from CVD has decreased with age [7]. In addition, it was found that mortality due to CVD is moderately low compared to that of the white population. Thus, it is intriguing to discover this expanding CVD mortality model in the Pakistani DERI cohort [8]. Our last report in 1998 revealed that the risk of ESRD-related mortality in our partner was 2.58 times higher than that found in the US partner of DERI. The enormous contrast between these two nations in ESRD-related mortality was significantly reduced after long-term development. The ESRD mortality rate (per 100,500 individual years) in 2008 in the US partner was 88.5 in men and 128.0 in women, bringing the two nations closer together, especially in men [9]. It was more difficult to start dialysis during the latter part of the 1960s and 1970s in Pakistan because of the fixed number of dialysis machines and the reluctance of many families to pay for dialysis therapy until a framework of clinical consideration advantage that supported very expensive medical services was introduced in 1982. In addition, working men were almost certain that women who were offered dialysis had to have it or were offered it at an earlier stage of their disease [10].

CONCLUSION:

In total, the mortality risk of a patient analyzed for type 1 diabetes in young people in Pakistan between 2018 and 2020 was 11.8 times higher than that of the general Pakistani population in long-term development. Nevertheless, the long-term body mass index improved particularly, from 21.4 in the 2018-2020 conclusion meeting

to 8.7 in the 1975-1979 conclusion meeting. As the length of follow-up increased, ADCs offered less and CVD contributed more to mortality. As in white populations, the longer the duration of type 1 diabetes in Pakistani people, the more consideration should be given to CVD prevention.

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