P-0922- Cardiovascular disease risk factors in Pakistani population with newly diagnosed Type 2 Diabetes mellitus

Syed Abbas Raza¹, Mariam Hassan¹, Farhana Badar¹, Farah Rasheed¹, Fouzia Meerza¹, Sumeyya Azam¹, Ali Jawa^{*}, Imtiaz Hassan^{*}, Faisal Masood Qureshi^{*}, Zakir Alvi^{*}, Saeed A Mahar^{*}, A H Amir^{*}

¹Shaukat Khanum Memorial Cancer Hospital and Research Centre, Pakistan

Presenting Author: Sumeyya Azam

Fig 1

Fig. 2

Fig. 3

Fig. 4

BACKGROUND

Diabetes is a metabolic disorder and a serious health issue with an increasing global prevalence. The study aimed to determine the cardiovascular disease (CVD) risk among people with newly diagnosed type 2 Diabetes mellitus (DM) in Pakistan.

METHODS

A multicentre, cross-sectional, prevalence study based on estimates, with no comparison group, conducted in 260 private family practice clinics in 27 cities across 4 provinces of Pakistan. Total 888 eligible patients (Figure 1) attending the out-patient clinics of participating centres were enrolled after obtaining written informed consent. Data was analyzed with SPSS (v. 19.0) and summarized the demographic and clinical baseline characteristics. Age groups were compared using the chi-square statistics and alpha-level of 0.05. 10 year absolute risk of fatal and non-fatal coronary heart disease (CHD) and stroke were calculated by using the United Kingdom Prospective Diabetes Study (UKPDS) risk engine (v.2.0) (Figure 2)

RESULTS

The overall mean presenting age of 888 participants was 42.4±5.8 years (31.1% were ≤39 years and 68.9% were ≥40 years). There were 40.8% (362/888) female and 59.2% (526/888) male patients. We compared laboratory findings to normal ranges using the American Diabetes Association (ADA) criteria for fasting glucose, Glycated hemoglobin (HbA1c) and lipid profile and, the Joint National Committee (JNC) criteria for categorization of Blood pressure (BP) readings. Ethnicity specific cut-offs were used for body mass index (BMI). Cross tabulation between age group and categorical variables showed a statistically significant association (≤0.05) between age group and triglyceride level (TG) and very low density lipoprotein (VLDL) (Fig 3) and glycated hemoglobin (HbA1c). On comparison of HbA1c, 83.7% and 84.8% had abnormal HbA1c of ≥6.5% in age group ≤39 years and ≥40 years, respectively. The frequency and distribution of hypertension is shown in (Fig 3). Incidence of cardiovascular risk factors at the onset of type 2 DM is shown in (Table 1). Our study indicated a higher prevalence of dyslipidemia, obesity, hypertension, glucose intolerance abnormal HbA1c and smoking in a younger age group. Mean risk estimate for CHD was 9.7% (CI 9.0-10.1), fatal CHD 4.4% (CI 4.0-4.6), stroke 1.5% (CI 1.2-1.7), and fatal stroke 0.25% (CI

0.22-0.24).

Table 1: Distribution of cardiovascular risk factors at the onset of type 2 DM, by age group

Risk factor	Age Category		Total (%)
	≤39years (n=276)(%)	≥40years (n=612) (%)	
Smoking (currently)	33(12.0)	64 (10.5)	10.9%
BMI (Obesity≥25kg/m ²)	198(71.7)	423 (69.1)	70.0
BP(High≥140/≥90mmHg)	44 (15.9)	134 (21.9)	20.0
Systolic BP <140 by diastolic BP ≥90)	42(15.2)	80 (13.1)	13.7
Systolic BP ≥140 by Diastolic BP <90	8 (2.9)	31 (5.1)	4.4
Mean HbA1c (%)	9.5±2.71		
Fasting total cholesterol (Above normal 200 to ≥240mg/dL)	105 (38.0)	213 (34.8)	36.0
LDL (Above normal >100mg/dL)	131(47.5)	269 (44.0)	45.0
HDL (Below normal ≤40mg/dL)	109 (39.5)	200 (32.7)	34.8
VLDL (Above normal >30mg/dL)	143 (51.8)	247 (40.4)	43.9
TG(Above normal 150to ≥200mg/dL)	139 (50.4)	248 (40.5)	43.6

CONCLUSION

A higher prevalence of dyslipidemia, obesity, hypertension, glucose intolerance, abnormal HbA1c and smoking in a younger population at the onset of type 2 DM in our study is an important finding. To the best of our knowledge, this is the largest study that assesses CVD risk among people with newly diagnosed type 2 DM in Pakistan. Our data highlighted the need for screening of cardiovascular risk factors in younger age group with newly diagnosed type 2 DM. Ethnicity specific lower thresholds are needed for cardiovascular risk factors, indicating requirements for our national consensus guidelines.

FUTURE PLANS: We plan to follow this cohort over years

*Endocrinologists from various hospitals in Pakistan participated in the study as Co-Investigators

Principal Investigator: **Dr. Syed Abbas Raza**

Shaukat Khanum Memorial Cancer Hospital and Research Centre, Pakistan

Email: sabbasraza@hotmail.com