

# Experience of running Free Diabetes Clinic at Muhammad Medical College Hospital, Mirpurkhas.

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## Abstract

**Background:** Complication of diabetes mellitus (DM) are many. One of the recognized risk factors for developing them is non-compliance with treatment (due to various socioeconomic reasons in our set-up). A free diabetes clinic (FDC) has been providing services at MMCH last nearly 2 years. However, no data exists regarding the various issues surrounding DM in this population

**Aims:** To determine various demographic, clinical and biochemical issues of diabetic patients of Mirpurkhas and surroundings.

**Methods and Design:** Retrospective analysis of the data of diabetic patients at the time of their registration in our FDC.

**Results:** We registered 430 of Patients (280 Males, 150 females). Their mean age was 41 years (range 11 to 75). 405 (94%) had type II DM. Their mean body mass index (BMI) was 24 (range 15 to 43). Average blood pressure was 140/100 (Max 210 /110 mm Hg). 175 (40%) of patients were hypertensive (as defined for DM with BP of > 130/90 mmHg). Average random blood sugar levels on registration was 180 mg / dl. (range 65 to 675). Blood cholesterol of 25 patients (5%) was checked with average result of 134 mg/ dl (range 100 to 230) 55 (12%) of patients had serum creatinine checked, of which 37 (67%) had some degree of impairment. 13 / 37 / (35 %) of all Glycated Hemoglobin (Hb A1C) were within normal limits of  $\leq 6$ , 14/37 (37%) were moderately raised (up to 7%), 10/37 (27%) was severely impaired (above 7%). 174 / 430 (40%) patients had fundoscopy at FDC by an experienced and qualified ophthalmologist, of which 45(25%) had some grade of diabetic retinopathy.

**Conclusion:** Despite massive subsidies, only a small fraction of patients get investigations done for nephropathy, dislipaemia and retinopathy. Among them 40% had hypertension and 67% of those checked had nephropathy. Of those that were checked (with a bias of those who agreed / wished to get examination), 25% had some degree of retinopathy.

## Introduction:

Diabetes Mellitus is not a single disorder, but rather a constellation of abnormalities of glucose homeostasis that is associated with significant acute or chronic complications<sup>1</sup> it is the most common chronic endocrine disorder, affecting an estimated 5% to 10% of adult population in industrialized western countries, Asia, Africa, Central America & South America and it has a larger impact on society.<sup>2</sup> The international Diabetic Federation (IDF) has subsequently released estimates of the numbers of peoples with diabetes for 2003 of 194 millions and for cast for 2025 of 334 millions.<sup>3</sup> Its prevalence in Pakistan in age group 20-79 years is 6.2 million that is more than 10% of population.<sup>4</sup>

Studies show that diabetes is more prevalent in higher social economic class whereas the complications of diabetes are more prevalent in lower socio economic class. The main complication of diabetes are macro and micro vascular. All these complications can be prevented as directed by ADA, WHO, IDF and other guidelines.

<sup>5</sup> It is estimated that 6.2 million (8.5%) population of world suffer from major and deadly complications.

The main causative factors for complications include neuropathy, macro vascular diseases, micro vascular diseases, infections, connective tissue abnormalities and hematological disturbances.<sup>7</sup> Insulin resistance underlies abnormalities of glucose, lipid and blood pressure homeostasis. It is also the major factor involved in pathogenesis of type 2 diabetes mellitus, hypertension, dyslipidemia and cardiovascular diseases.<sup>8</sup>

The main purpose of study is to find out various demographic, clinical and biochemical issues of diabetic patients of Mirpurkhas and surroundings to determine their financial and social aspect regarding diagnosis and treatment of diabetes.

## Patients & Methods:

It was a retrospective analysis of patient's data at the time of their registration in free diabetic clinic (FDC). 430 diabetic patients of age 20-75 years visiting at free diabetic clinic running at Muhammad Medical College Hospital Mirpurkhas where randomly selected during Jan 2006 to August 2006. A detailed history and thorough physical examination was performed after taking written consent from the patients.<sup>9,10,11</sup> out of 430 patients 405 were type 2 diabetic while 25 were Type 1 diabetic patients. 280 were male and an other 150 were female patients. The dyslipidemia was defined as an

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increased serum cholesterol level above 150mg / dl and hypertension was defined as systolic blood pressure > 140 mmHg or diastolic pressure > 90 mmHg.<sup>12</sup> Blood tests for blood glucose, HbA<sub>1c</sub>, cholesterol and creatinine were advised to all patients but many of the patients refused to have certain tests due to their poor socio economic conditions.<sup>13</sup> Any associated disease like TB, UTIs, Asthma was excluded. BMI of patients was calculated by weight and height of patients.<sup>14</sup> Blood samples of all patients was examined for glucose by oxidase method, while out of 430, 55 (12%) patients were examined for S. Creatinine due to their non affording socio economical status by Jaffe Reaction method.<sup>15</sup> Blood cholesterol of 25 patients by checked by keeping in mind their socio economic condition and severity of disease by enzymatic calorimetric method.<sup>16</sup> Hb A<sub>1c</sub> of 37 patients was formed by enzymatic assay.<sup>17</sup> 174 patients were sent to senior Ophthalmologist for fundoscopy.

#### Result:

out of 430 patients 280 (65.1%) were male that means there is greater flow of male patients to FDC (280:150). 405 patients (94%) out of 430 were suffering from Type 2 diabetes while the remaining 25 patients (6%) were Type 1 diabetics. The average age of patients was found 41 years. The average BMI was calculated as 24 (range between 15-43) . 60% of female (90/150) were obese having an average BMI 25 while 30% (84/280) male were obese having an average BMI 23. The average blood pressure was recorded as 140 / 100 mmHg (Max.210/110). The data shows that 40% of the patients (175/430) were suffering from hypertension. The random blood sugar levels of these patients was in range of 65-675mg /dl (an average random blood sugar level was 180 mg/dl). Due to low socio economic condition unfortunately 25 patients (5%) were tested for Serum Cholesterol which was found to be in between 100-230 mg/dl (an average of 134 mg/dl). 12% of the patients (55) were checked for serum creatinine and out of these 55 the data of 37 patients (67%) was found impaired to some degree. 13 patients (35%) of 37 tested for glycated hemoglobin (Hb A<sub>1c</sub>) and found within normal limits i.e. =< 6%, 14/34 patients (37%) had moderately raised Hb A<sub>1c</sub> (upto 7%) and 27% patients (10/37) were found with severely impaired Hb A<sub>1c</sub> (above 7%) those 174/430 patients (40%) sent to ophthalmologist for fundoscopy reported as 45 patients (25%) had some grade of diabetic retinopathy.

#### Discussion:

In Pakistan diabetes is reported as common metabolic along with risk factors like obesity and cardiovascular problems.<sup>18</sup> The complications are more abundant in advance age as compared to smaller age groups which is also associated with poor diabetic control and inability to afford treatment.<sup>19</sup> Different studies show quite varied effect of gender on metabolic syndrome in different population we experienced that more male patients were visiting FDC i.e. 65.1% were male and 34.9% were female.

However the higher percentage of Type 2 Diabetes is reported in females of Nigeria.<sup>20</sup> The reason of more visit of male to FDC may be highly tense lifestyle of males and feudal rules of Pakistani society which partially allow females to come out of their homes.

The prevalence of metabolic syndrome was observed increasing with age.<sup>21</sup> It is evident from the fact that only 02 patients of age 20-30 years visited FDC while 06 of 30-40 years; 65 patients between age 40-50 years visited FDC. 357 patients (83%) were over 50 years of age. Hypertension was more common among advanced age patients and it was noticed that 40% of all type of diabetes (172 patients) were suffering from hypertension. This hypertension was mostly associated with obesity and most of the patients (90/150) were females because 60% of females have raised BMI and therefore these were more prone to hypertension and angiopathy.<sup>23</sup> Less no. of patients were tested for Hb A<sub>1c</sub> because they could not afford the cost of test but of those who were tested for Hb A<sub>1c</sub>, the results were again not satisfactory i.e. 13/37 (35%) have normal limits of Hb A<sub>1c</sub> while the others(63%) have moderate to severe Hb A<sub>1c</sub> impairment which shows the lack of interest regarding management of disease. The derangements were also evident from the results of serum creatinine i.e. 37/55 (67%) were facing the raised serum creatinine problem. The similar was obvious from results of fundoscopy that (25%) 45/174 have shown some degree of retinopathy.

#### Conclusion:-

Despite of having severe complications of diabetes very fewer peoples were agree to get some laboratory investigation in our Pakistani community unless the complications become so intense that these disturb normal routine of life. We have seen that 40% of the patients were suffering from hypertension, 25% were facing retinopathy, 67% have impaired creatinine levels. But the patients were unaware of their problem and its severity due to lack of investigation because their socio economic condition can not allow them to do so.

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