Assessment of Prevalence of Diabetes Among Geriatric Population of Kyrgyzstan

Phani Bhushan Potu

MBBS, PHD (Public Health),
International School of Medicine, International University of Kyrgyzstan, Bishkek, Kyrgyzstan.

ABSTRACT

Introduction: Population growth, aging of population, and urbanization with associated lifestyle change is likely to lead to a 55% increase in worldwide numbers with diabetes by 2035. Kyrgyzstan is the largest of the Central Asian states and there were 717,500 cases of diabetes in Kyrgyzstan in 2015 with estimated prevalence of 6.2 of diabetes among adults. There is very little evidence on the prevalence of diabetes in geriatric population in Kyrgyzstan. Hence present study was undertaken to assess the prevalence of diabetes among geriatric population of Kyrgyzstan.

Material and Methods: The survey was conducted among 1000 residents of Kyrgyzstan nationality aged 60 and above by door to door survey. Data collection included medical history, dietary habits, lifestyle pattern, physical activity pattern, clinical measurements. Their fasting blood sugar was estimated using an automated glucometer. Diabetes was diagnosed if fasting blood glucose was 126 mg/dL, or if the participant was taking treatment for diabetes. SPSS software was used for the statistical analyses. Data was expressed as numbers or percentages and analyzed using the Chi-square test. p value of < 0.05 was considered statistically significant.

Results: Among geriatric population in Kyrgyzstan, the present study found 13.1% cases of diabetes among studied population. 16.2% cases of diabetes were found among Male respondents and 10% among female respondents. 64 male and 25 female had awareness regarding role of diet in diabetes control with significant (p=<0.05) difference among diabetic

male and female patients. In the present study 48% male and 16% female patients were aware regarding role of exercise in controlling diabetes.

Conclusion: Diabetes has become a national health concern in Kyrgyzstan; hence, improving detection, awareness, and treatment strategies is urgently needed to prevent the growing burden associated with diabetes. The present study found significant difference of awareness among male and female patients with female patients less aware as compare to male patients. Overall knowledge was poor among the diabetic patients regarding control of disease.

Keywords: Diabetes; Old age; Kyrgyzstan.

INTRODUCTION

The aging population is growing worldwide and the proportion of people above 60 years old accounts for 15% of the whole population which is estimated to 7.5 billion. In general, 20% of old people have DM, and a similar proportion have undiagnosed DM. Reported frequencies vary from 18% to 33%. This range may reflect differences in the age, life style, and genetic background of the analyzed populations. On another hand, 30% of old people have impaired glucose regulation which means an increased risk for DM.[1] Population growth, aging of population, and urbanization with associated lifestyle change is likely to lead to a 55% increase in worldwide numbers with diabetes by 2035.[2] Kyrgyzstan is the largest of the Central Asian states[3] with estimated population of 17,625,000 according to 2015 data statistics.[4] Based on available statistics according to WHO (2014),

the age-standardized prevalence of diabetes (raised fasting blood glucose > = 7.0 mmol/l or on medication for raised blood glucose) in Kyrgyzstan was estimated as 13.2% , which is higher compared to Europe (8.3%).[5] There were 717,500 cases of diabetes in Kyrgyzstan in 2015 with estimated prevalence of 6.2 of diabetes among adults.[6] Middle-aged and older adults are still at the highest risk for developing type 2 diabetes. According to the CDC, there were a total of 1.7 million new total diabetes cases in 2012. In 2012, adults aged 45 to 64 were the most diagnosed age group for diabetes.[7]

There is very little evidence on the prevalence of diabetes in geriatric population in Kyrgyzstan. Hence present study was undertaken to assess the prevalence of diabetes among geriatric population of Kyrgyzstan.

MATERIAL AND METHODS

The survey was conducted among 1000 residents of Kyrgyzstan nationality aged 60 and above by random sampling method. After obtaining informed consent, we surveyed permanent residents of Kyrgyzstan nationality by door to door survey. Data collection included medical history, dietary habits, lifestyle pattern, physical activity pattern, clinical measurements. Fasting blood sample was collected on second visit during early morning hours. Patient was informed on first visit regarding next day collection of fasting blood sample. Their fasting blood sugar was estimated using an automated glucometer. Diabetes was diagnosed if fasting blood glucose was 126 mg/dL, or if the participant was taking treatment for diabetes. Patients were enquired regarding their awareness regarding treatment importance, role of diet and exercise in control of diabetes.

SPSS software was used for the statistical analyses. Data was expressed as numbers or percentages and analyzed using the Chi-square test. p value of < 0.05 was considered statistically significant.

Table 1: Details of Study Group

Variable		N=1000
Mean Age (Mean± SD)		65.1±2.3
Gender	Male	500
	Female	500
Average Fasting plasma glucose (Mean± SD)		6.2±1.8
Prevalence of Diabetes n=1000		131 (13.1%)
Prevalence of Diabetes among Male population (n=500)		81 (16.2%)
Prevalence of Diabetes among Female population (n=500)		50 (10%)
New cases diagnosed		18
Go for morning walk	Regular	315
	Some times	510
	Never	150
Intake of sugary substances	No intake	15
	Restricted intake	90
	Moderate intake	498
	Heavy intake	397

Table 2: Assessment of awareness among diabetic patients (N= 131)

Variables			Cases	PERCENTAGE	P- Value
Awareness regarding treatment (medicines) [n=131]	Yes	Male	60	45%	<0.05
		Female	30	23%	
	NO	Male	21	16.03%	
		Female	20	15.26%	
Awareness regarding role of diet in diabetes control	Yes	Male	64	48.85%	<0.05
		Female	25	19.08%	
	No	Male	17	12.97%	
		Female	25	19.08%	
	Don't Know	Male	0	-	
		Female	0	-	
Awareness regarding role of exercise in diabetes control	Yes	Male	63	48.09%	<0.05
		Female	22	16.79%	
	No	Male	17	12.97%	
		Female	23	17.55%	
	Don't Know	Male	1	.76%	
		Female	5	3.81%	
Previous family history	Yes	Male	23	17.55%	>0.05
		Female	15	11.45%	
	No	Male	45	34.35%	
		Female	19	14.50%	
	Don't Know	Male	13	9.92%	
		Female	16	12.21%	

p-value is significant if P<0.05

Graph 1: Prevalence of Diabetes (n=1000)
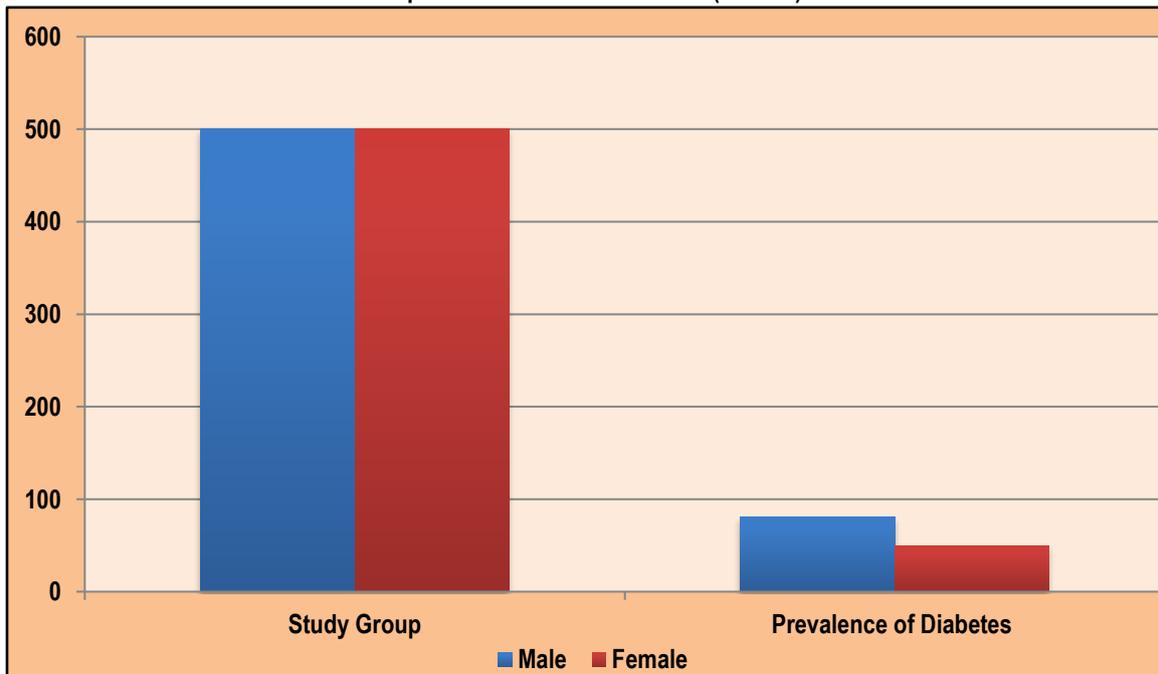
Graph 2: Previous family history among Subjects with DM (n=131)
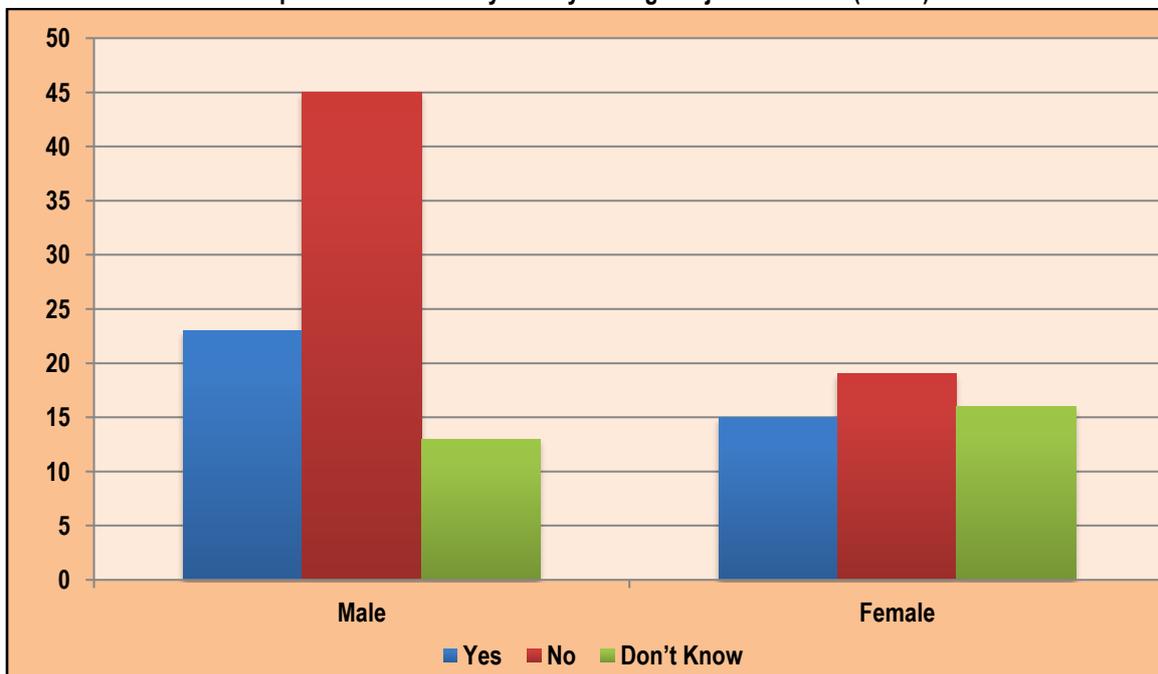
RESULTS

The observation of study shows that subjects more than 60 year of age were selected for the study. Total (N=1000) were selected for the study out of them 500 were male and 500 were population (Graph 1).Table 1 shows that mean age of the study group was 65.1±2.3. Average Fasting plasma glucose 6.2±1.8 (Mean±SD) was found. Table 1 shows among the studied cases, 13.1% cases of diabetes were found. Graph 1 shows the prevalence of DM was 16.2% among Male respondents and 10% among female respondents. There were 131 diabetic cases among 1000 studied subjects. It was seen that 18 patients were unaware that they were suffering from DM. Out of all 1000 subjects 315 regularly, 510 sometimes go for morning walk. Among 1000 subjects, 397

having heavy, 498 moderate, 90 restricted and 115 cases having no sugar intake.

Table 2 shows that about 45% male respondents and 23 % female respondents among 131 diabetic cases were aware regarding medicine treatment of DM but 41 patients were not aware about importance of medicinal treatment with significant (p=<0.05) difference among diabetic male and female patients.

64 male and 25 female had awareness regarding role of diet in diabetes control but about total 42 patients were not aware about role of diet in diabetes control with significant (p=<0.05) difference among diabetic male and female patients. 48% male and 16% female patients were aware regarding role of exercise in

controlling diabetes. Graph 2 showing that 23 male and 15 female had previous family history of DM 34% male and 14.5% female were not having any family history of DM and 29 patients have no idea regarding this.

DISCUSSION

The prevalence of diabetes in Asia is increasing rapidly. The WHO also projects that by 2030 more than half of diabetes sufferers in the world will live in Asia. More than half of the people with diabetes (53%) are above 60 years and more than 85% are above 45 years.[8]

Although the burden of diabetes is often described in terms of its impact on working-age adults, diabetes in older adults is linked to higher mortality, reduced functional status, and increased risk of institutionalization. Older adults with diabetes are at substantial risk for both acute and chronic microvascular and cardiovascular complications of the disease.[9]

Hence the present study was undertaken to assess the prevalence of diabetes among geriatric patients in Kyrgyzstan. In our study; we found 13.1% cases of diabetes among studied population. The revealed data corresponds to estimation of Supiyev A et al[10] who estimated the overall prevalence of diabetes as 12.5% in Kyrgyzstan. The rapid societal transformation after the dissolution of USSR was accompanied by fast introduction of western diet and lifestyle. Assessing the prevalence of diabetes and concerned factors in these rapidly changing societies is crucial, since modifying these risk factors may provide many opportunities to prevent diabetes and appropriate management of diabetes reduces diabetes-attributable complications and mortality.[10-12]

The reported prevalence from other Asian low- and middle-income countries revealed similar data. Anjana Ret al[13] reported 8.6% and Singh A[14] reported the prevalence of diabetes in India to be 18.8%. Constantine GR et al[15] in Sri Lanka reported 8.0% and Yang W et al[16] reported 9.6% prevalence of diabetes in China.

Diabetes mellitus is considered to lead to accelerated aging because of both the accumulation of advanced glycation end products, a marker of aging, in the tissues and the high incidence of atherosclerotic disease compared with non-diabetic populations. Also, because the development of diabetic micro- and macrovascular complications is dependent on the duration of diabetes, symptoms of the complications may be concentrated in the elderly. The diabetes population has a high prevalence of geriatric syndrome such as functional disabilities, depression, fall, urinary incontinence, pain and dementia, which occur due to the aging and diabetic complications. The geriatric symptoms lead to frailty, loss of independence and low quality of life. Importantly, these geriatric symptoms are major obstacles in the treatment and care of diabetic people.[17]

Eriksson KF et al[18] studied relation of diabetes mellitus and diet and physical exercise and the study concluded that long-term intervention in the form of diet and physical exercise is feasible even on a large scale, and that substantial metabolic improvement can be achieved which may contribute to prevent or postpone manifest diabetes. In the present study, 64 male and 25 female had awareness regarding role of diet in diabetes control with significant (p=<0.05) difference among diabetic male and female patients. All older patients with diabetes should receive counseling about lifestyle modification (exercise, diet, behavioral modification,

and weight reduction if required. The oldest age group in the Diabetes Prevention Program (DPP) (>60 years of age at baseline) had the greatest improvement in glycemia over time, related in part to better adherence to the lifestyle program (a behavioral modification program aimed at a low-fat diet and exercise for 150 minutes per week), compared with the younger age groups.[19]

In the present study 48% male and 16% female patients were aware regarding role of exercise in controlling diabetes. Physical activity benefits people of all ages and may decrease all-cause morbidity and increase lifespan. Older adults should be encouraged to be as active as their functional status will allow. Functionally independent adults should be encouraged to perform 30 minutes of moderate-intensity aerobic activity (eg, brisk walking) at least five days per week.[19]

CONCLUSION

Diabetes has become a national health concern in Kyrgyzstan; hence, improving detection, awareness, and treatment strategies is urgently needed to prevent the growing burden associated with diabetes. The present study found significant difference of awareness among male and female patients with female patients less aware as compare to male patients. Overall knowledge was poor among the diabetic patients regarding control of disease. Data for trends in glycaemia and diabetes prevalence are needed to understand the effects of diet and lifestyle within populations, assess the performance of interventions, and plan health services.

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