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PREVALANCE OF PHARMACOEPIDEMOLOGICAL STUDIES OF DIABETES MELLITUS IN SOUTHERN PART OF INDIA

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ABSTRACT

Over the course of three years in 2021, 2022, and 2023, an epidemiological research on type I and type II diabetes was involving 3325 patients, 2261 males and 1064 females of all ages between 0-90 years was collected at MGM, Warangal District, Telangana State, India. Each patient had a clinical examination to detect blood glucose levels and signs and symptoms of diabetes mellitus. In addition, each patient completed a pre-test questionnaire to learn about their eating and other habits. Out of the 3325 patients who were evaluated 2709(81.5) tested positive for type II diabetes mellitus; of 1848 were males, 861 were females and 615(18.5) tested positive for type-I diabetes mellitus; of these, 376 were male., 239 (women). Type-II (81.5%) had a higher prevalence of diabetes mellitus than type-I 615(18.5%), and it is more prevalent in males than in females, according to the distribution of the disease by types and gender. Patients who were 55 years of age and older had the highest prevalence of diabetes mellitus, with 2274 (68.4%) of those in the 30-65 year age range being the most affected. The simultaneous prevalence of various diseases and such as diabetes mellitus 1218 (36.63%), hypertension 548(45%), diabetic ketoacidosis 183(15%) and diabetic foot ulcers 150 (12%), Retinopathy 99.8(8%), Nephropathy 74.8(6%), Neuropathy 174 (14%). The results were also shown that the rate of cardiovascular diseases was considerably greater in people with diabetes mellitus than in people without the condition.

Keywords: Type-I Diabetes Mellitus, Epidemiological Research, diabetic foot ulcers

INTRODUCTION

The chronic metabolic disease known as Diabetes mellitus has become a significant global public health concern and epidemic of the 20th century. According to estimates, 57.2 million Indians will have diabetes mellitus by 2025, up from the current

projection of over 33 million [1]. These days, more developing nations than Western nations have a higher percentage of people with diabetes mellitus. The prevalence of diabetes has dramatically climbed during the last 30 years in globally [2].

Diabetes used to be a minor cause of morbidity and death for young and middle-aged adults, but its position has now transformed to serious. It is widespread throughout the world's six inhabited continents [3]. Type 2 diabetes represents over 90% of cases of diabetes worldwide. It is the main cause of the epidemic, despite the fact that type 1 diabetes is also growing more prevalent. Based on information provided by the World Health Organization (WHO), 32 million Indians suffered with diabetes in 2000 [3]. Urban populations in various Asian nations, particularly India, have a high prevalence of type 2 diabetes, according to epidemiological studies.

The International Diabetes Federation (IDF) estimates that there are currently 40.9 million diabetics in India; by 2025, that figure is predicted to rise to 69.9 million. [4]. The Madras Research Center conducted the first study in 1984 using the WHO's criteria for the prevalence of type 2 diabetes. Within a city township, the was used to evaluate diabetes and IGT. It was found that type 2 diabetes affected 5% of

the population [5]. In 1972, India conducted its first nationwide survey on the prevalence of type 2 diabetes [6] ICMR, New Delhi, between 1989 to 1991, a nationwide survey diabetes in rural people was conducted in several regions of the nation among specific rural groups. According to this study [7], the crude prevalence of diabetes was 2.8% based on the 1985 WHO criteria for diagnosis.

A capillary blood glucose level more than 170 mg/dl was used to diagnose diabetes. In cities, the frequency was 2.1%, and in rural regions, it was 1.5%. in rural areas, with a 5% prevalence in individuals over 40. 2.8% were in rural and urban areas. In six major Indian cities there is 11,216 individuals who were 20 years of age or older and representative of all socioeconomic classes were included in the National Urban Diabetes Survey (NUDS), a population-based research project [8]. The WHO criteria were used to identify diabetes [9].

According to the study, type 2 diabetes had an age-standardized prevalence of 12.1%. Additionally, this study showed that the 13.5% in Chennai, 12.4% in Bangalore, and 16.6% in Hyderabad, the southern part of India has a higher frequency than the eastern (Kolkatta), northern (New Delhi), and western regions of the country. The eastern region (Kolkatta), which had

11.7%, 11.6%, and 9.3%, respectively. Additionally, the study revealed has 14% of the pool of participants with impaired glucose tolerance (IGT) had a high chance of developing diabetes. Because of this, we suggested that researching the diabetes mellitus in a semi-urban setting in southern India.

Topics from January 2021 to December 2023, all patients data were obtained from the MGM Hospital's Department of General Medicine in Warangal, Telangana, India. Every participant was getting a general health examination and diagnosis at MGM Hospital's outpatient division.

RESULTS

The pharmacoepidemiology of diabetes mellitus findings were presented as tabular data. Out of the 3325 patients that were tested, the results showed that 2709 (81.5%) had type II diabetes mellitus, with 1847 were males, 861 were females and 615 (18.5%) had type I diabetes mellitus, with 376 males and 239 females. Diabetics who were 55 years of age and older had the highest prevalence of diabetes mellitus, 2274 (68.4%) of those in the 30–65 year age range being the most affected. The number of diabetes instances in 2021, 2022, and 2023 is shown in **Figure 1 bar graph**, which displays the gender-based diabetes prevalence in 2021, 2022, and 2023, indicates the distribution of diabetes

mellitus by type and gender. Type-II (81.50%) had the highest prevalence, followed by type-I (18.5%) and more males than females. The diabetic complications were shown in **Figure 2**. It shows that the number of patients with type-1 diabetes decreased year-over-year, from 243 in 2021 to 215 in 2022 to 157 in 2023 2023, and the number of patients with type-2 diabetes are also decreased year-over-year, from 1433 in 2021 to 694 in 2022 to 582 in 2023. The simultaneous prevalence of various diseases and diabetes 1218 (36.63%), hypertension 548(45%), diabetic ketoacidosis 183(15%) and diabetic foot ulcers 150 (12%), Retinopathy 99.8(8%), Nephropathy 74.8(6%), Neuropathy174 (14%). The results also shown that the rates of cardiovascular diseases are greater in people with diabetes mellitus than in people without the condition.

DISCUSSION

Due to the various criteria employed, it is challenging to estimate the prevalence of diabetes. Reports suggest that the disease affects 1-2% of the general population, while it may affect as many as 50% of some ethnic groups, such as the Pima Indi [10], there is also a high prevalence among Native Australians (25.7%), Non-Hispanic Blacks (19.8%) and Mexican Americans (25.7%) [11], males in southern India were found to be more susceptible to diabetes

than females, as evidenced by the higher rates, also in our study.

Direct comparison is challenging, though, because there aren't any research on diabetes mellitus in India based on ethnic groups, and getting older is linked to a higher risk of the disease. The high prevalence of diabetes and impaired glucose tolerance (IGT) with advancing age [12]. This observation was also made in the current investigation. Diabetes strikes Indians more earlier than it does White people. According to earlier findings from India's national urban diabetes survey, over half of diabetes in all cases of onset occurred before the age of 50 [13]. In the USA, Indians exhibit a much higher age-related frequency than the caucasian population. Research has also demonstrated that diabetes risk increases at relatively low BMI levels [14]. Nonetheless, the current study shows that 45% of cases are classified as type 1 diabetes. The discovery of the diabetes risk factors has made it possible to diagnose subclinical abnormalities early on, with many of them being modifiable. Identifying the high-risk category can also be accomplished by evaluating physical activity, asking about a family history of diabetes, and testing basic factors like anthropometry. Individuals who lead sedentary lifestyles have been high risk, making them perfect candidates for

diabetes primary prevention [15]. Numerous prospective studies [16] has that lifestyle modification approaches aid in delaying the onset of diabetes. The preventive diabetes program (DPP) was the basis for the Indian Diabetes Prevention Programme (IDPP), a preventive study that was conducted there that amply demonstrated the role that physical exercise plays in preventing metabolic disorders [17]. Early detection of high-risk persons would facilitate the implementation of appropriate interventions. The current study findings states females are less diabetes mellitus than males and the cardiovascular disease, or hypertension, is the main risk factor for diabetes. Modifying risk factors like obesity and insulin resistance can help prevent diabetes in its primary form [18-19]. Foot ulcers are the most common diabetes consequences, followed by hypertension and ketoacidosis.

CONCLUSION

Diabetes is becoming more and more common worldwide, especially among people living in urban and semi-urban areas of India. Younger diabetic people's age group concerning have the negative effect on the country's economy. Early detection of those who are at risk, appropriate weight loss measures, dietary adjustments, and increased physical activity can all significantly lessen the burden of non-

communicable diseases on India's population by preventing or delaying the onset of diabetes. Present-day lifestyle choices may hasten the disease's clinical manifestation at an

early age. Because Asian populations have a great hereditary propensity to metabolic disorders like diabetes and cardiovascular disease, the health effects are disastrous.

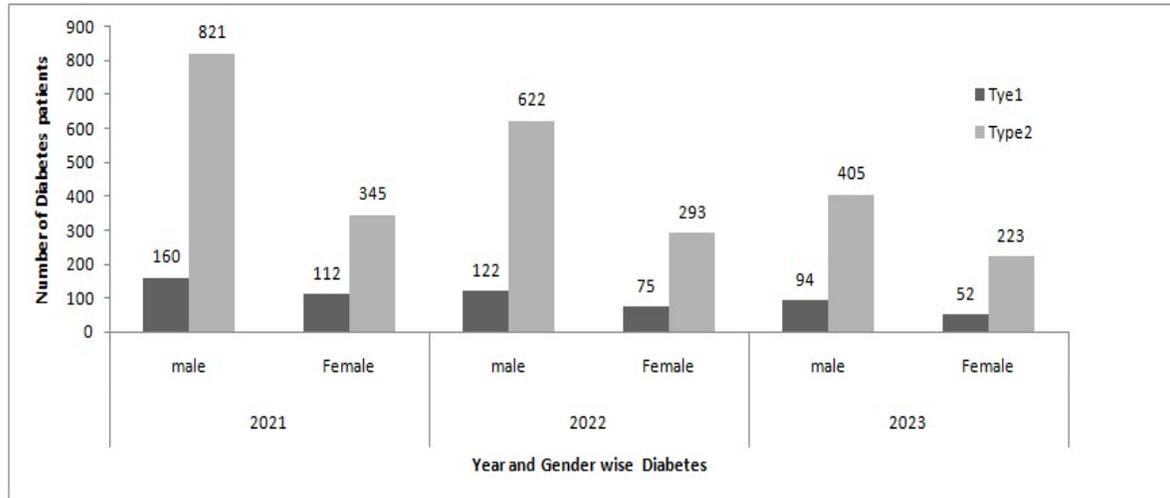


Figure 1: Prevalence of Diabetes mellitus year and gender wise (type-1 & type-2)

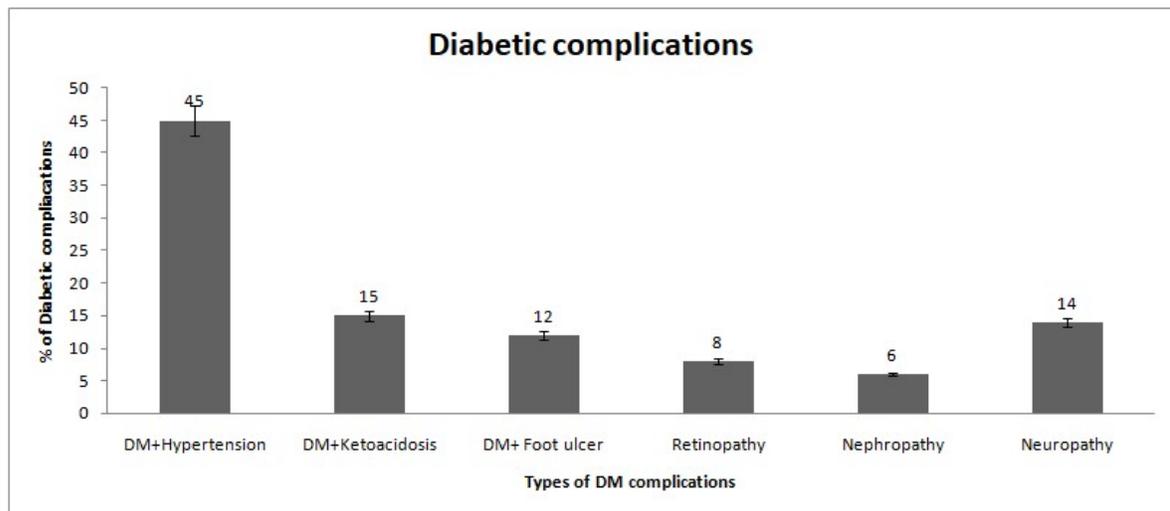


Figure 2: Complications of diabetes mellitus in type-1 & type-2

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