

A comparative study on cardiovascular parameters in Normal and Type 2 Diabetes mellitus patients.

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Abstract

Background- Diabetes is an ICEBERG disease. According to WHO report the prevalence of diabetes in adults worldwide has risen and the number will rise from 135 million in 1995 to 300 million by the year 2025.

Methods- The present study was conducted in two groups classified as Group (1)30 normal individuals; Group (2) 30 Diabetics Type-2.

Results- The mean value of heart rate in 30 Diabetic patients was found to be 85.20 with standard deviation of 12.10 which higher when compared with the mean value of heart rate in 30 normal people which is 81.52 with standard deviation of 11.30. But this difference was statistically not significant ($p>0.05$). Mean arterial pressure of Diabetic patients was found to be 95.90 mmHg with a standard deviation of 6.80 which again is more than mean arterial pressure of normal persons which is 97.90 mmHg with standard deviation of 7.80. Though there is a difference in mean arterial pressure among two groups, but it was not statistically significant ($p>0.05$)

Conclusion -There is increased need for regular health checkups especially of the cardiovascular system to prevent complications.

Keywords: Diabetes, WHO, Cardiovascular.

Introduction

Diabetes is an ICEBERG disease. According to WHO report the prevalence of diabetes in adults worldwide has risen and the number will rise from 135 million in 1995 to 300 million by the year 2025. Epidemiological data in India shows the same upward trend according to the World Health Organization estimates, that India had 32 million diabetic subjects in the year 2000 and this number would increase to 80 million by the year 2030¹.

Neuropathy is one of the most common complications of diabetes. Silent myocardial infarct is more common in diabetics due to involvement of cardiac autonomic nerves. At an early stage autonomic dysfunction may be asymptomatic or mildly symptomatic. Symptomatic autonomic neuropathy carries worst prognosis, so early diagnosis is essential for maximum benefit more so in diabetes²⁻³.

Heart rate variability monitoring plays a vital role in prevention and early diagnosis of cardiac autonomic neuropathic complications.

Materials and Methods

The present study was conducted in two groups classified as Group (1) 30 normal individuals; Group (2) 30 Diabetics Type-2.

The study was carried out in 30 Type-2 diabetic patients in the age group of 35-70 years with duration of diabetes ranging from 6 months to 20 years. Control Group consists of 30 normal individuals who matched with diabetes in age, sex and socio economic condition as far as possible. Informed written consent was taken from the subjects prior to the start of the study.

Results

A total sample size of 60 with 30 normal individuals and 30 diabetic patients were included in the study. Mean age of the sample was 43.2±3.8 years with majority being in the age group of 40-50 years. Majority were males (60.00%) compared to females (40%). Among the diabetics, majority (53.33%) had duration of diabetes for about 10-15 years.

Table 1: Comparison of heart rate of normal persons and diabetic patients

Heart rate	Group-I	Group-II
Mean	85.20	81.52
SD	12.10	11.30
p-value	>0.05	

The mean value of heart rate in 30 Diabetic patients was found to be 85.20 with standard deviation of 12.10 which higher when compared with the mean value of heart rate in 30 normal people which is 81.52 with standard deviation of 11.30. But this difference was statistically not significant (p>0.05).

Table 2: Comparison of Mean arterial pressure of normal persons and diabetic patients

Mean arterial pressure	Group-I	Group-II
Mean	95.90	97.90

SD	6.80	7.80
p-value	>0.05	

Mean arterial pressure of Diabetic patients was found to be 95.90 mmHg with a standard deviation of 6.80 which again is more than mean arterial pressure of normal persons which is 97.90 mmHg with standard deviation of 7.80. Though there is a difference in mean arterial pressure among two groups, but it was not statistically significant (p>0.05)

Discussion

The mean value of heart rate in 30 Diabetic patients was found to be 85.20 with standard deviation of 12.10 which higher when compared with the mean value of heart rate in 30 normal people which is 81.52 with standard deviation of 11.30. But this difference was statistically not significant (p>0.05).

Similar results were found in previous studies of Ewing DJ, Martyn CN (1985)⁴, Ziegler D, Zentel C in(2006)⁵ where it was proved that heart rate of Diabetic are more when compared to normal due to vagal damage or due to decrease vagal tone.

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According to previous studies of Grossmann et al(1996)⁶ in Ann Intern Med (1996) patient with Diabetes and hypertension have a higher incidence of coronary artery disease than do patient with Diabetes or Hypertension alone. In Isfahan Diabetes prevention study⁷ there is increase in systolic & diastolic pressure and also increase in mean arterial pressure in Diabetics and they are also at high risk.

According to Haider AW, Larson MG, Franklin SS, Framingham heart study in (Ann. Intern Med.2003) systolic & diastolic pressure and pulse pressure are more in diabetics which are the risk factors for congestive cardiac failure⁸

Conclusion

There is increased need for regular health checkups especially of the cardiovascular system to prevent complications.

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