Methods: This cross-sectional study was carried out on total of 301 (186 males and 115 females) type 2 diabetic mellitus subjects. The risk factors to assess the metabolic syndrome were included body mass index (BMI), waist circumference (WC), high density lipoprotein (HDL), triglycerides (TG), fasting blood glucose (FBS), systolic blood pressure (SBP), diastolic blood pressure (DBP) and to determine the cut-off points of these risk factors for Asian Indians used National Cholesterol Education Program (NCEP) – ATP III and International Diabetes Federation (IDF) criteria. The cut-off points were determined for WC >90 cm in males and >80 cm in females, BMI >23 kg/m² and impaired fasting glucose (IGF) >100 mg/dl.

Results: It was observed that overall type 2 diabetic males (49%) were at risk of developing metabolic syndrome as compared to females (31%). The risk factors of metabolic syndrome such as BMI (34.6% for males and 70.4% for females), SBP (58.8% for males, 53% for females), DBP (38.4% for male, 30.4% for females) and triglycerides (85.48% for males, 85.2% for females) consistently higher in males as compared to females in which WC (75.1% for males, 89.6% for females), HDL (65.9% for males and 89.6% for females) and FBS (64.9% for males and 72.9% for females) were higher. However, the overall mean differences between males and females of all studied risk factors were not found to be statistically significant (p < 0.05).

Conclusion: The risk of metabolic syndrome is observed more in type 2 diabetic male Punjabi population due to sedentary lifestyle as compared to female.

Prevalence of peripheral arterial disease (PAD) by means of ABI in asymptomatic type II North Indian diabetics and its correlation with cardiovascular risk markers

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Aims: To evaluate the prevalence of PAD by means of ankle-brachial index (ABI) in T2DM patients-stage I grade 0 category 0 (Fontaine’s stages & Rutherford categories classification of PAD) in North Indian population.

Methods: Between winter 2012 and summer 2014, 2778 asymptomatic (no complaints pertaining to PAD) Type II diabetes patients were enrolled. Blood pressure, BMI, baPWV, Hba1c, Cholesterol, HDL, LDL & triglycerides values were analysed. The ABI was measured with VP-2000/1000-Colin Corporation, Hyayashi Komaki, Japan. PAD was considered when ABI measured was <0.9 in either leg.

Results: We studied 2778 patients (1681 men and 1097 women; mean age 50.4 ± 7.0 years; mean duration of diabetes 7.8 ± 5.9 years). The prevalence of PAD was 14.2% with men having a slightly higher prevalence (14.9%), as compared to women (13.2%). ABI was found to be significantly correlated with age (r = 0.15), duration of diabetes (r = 0.09), PWV (r = 0.13 for left and r = 0.12 for right) and DBP (r = 0.13). We did not find a significant correlation between measures of obesity (WHR) and PAD.

Conclusion: Using ABI, we found prevalence of PAD in 14.2% of type 2 diabetics which is comparable to western population. Risk factors significantly associated with PAD were – age, duration of diabetes, PWV and DBP. Considering ABI as a significant future CV risk marker, routine screening of diabetic population is advisable for future CV risk prevention.

Body-mass index, waist-size, waist-hip ratio and cardiovascular risk factors in North Indian Punjabi diabetic population

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Objective: To determine the association of obesity, measured by body-mass index (BMI), waist-size or waist-hip ratio (WHR), with multiple risk factors in Punjabi population.

Methods: 2015 (1157 M, 858 F) T2D subjects, aged between 31 and 79 years were enrolled for the study. Waist hip ratio (WHR), waist circumference (WC), body mass index (BMI), systolic blood pressure (SBP), diastolic blood pressure (DBP), lipid profile (total cholesterol, triglycerides, HDL, LDL), pulse wave velocity (baPWV), ankle brachial index (ABI) and Hba1c of the subjects were analyzed. Pearson’s correlation coefficients (r) of BMI, waist and WHR with various risk factors were determined.

Results: There is a positive correlation of BMI, waist-size and WHR with SBP (r = 0.18–0.07), DBP (0.13–0.08), duration of diabetes (r = 0.10–0.07), Hba1c (r = 0.126–0.08), total cholesterol (0.23–0.09), and LDL cholesterol (0.12–0.07) and negative correlation with HDL cholesterol (r = 0.11–0.08) in both men and women (p < 0.05). Triglycerides were found to be significantly correlated with BMI and WHR only (p < 0.05). No significant correlation was found with PWV & ABI.

Conclusion: There is a positive relationship of markers of obesity (body-mass index, waist size and waist hip ratio) with major cardiovascular risk factors and regular anthropometric measurements are needed in diabetic population to prevent future CV risk.

Sex and age specific association and prevalence of hypertension in overweight and obese North Indian diabetic population

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Aim: To determine the prevalence of hypertension in overweight and obese type 2 diabetic patients and its correlation with age and gender.

Method: 2644 type 2 DM subjects, aged between 20 and 80 years were enrolled for this study which is a cross-sectional and correlative study.

Results: From total sample of 2644 subjects with T2DM, 52.83% were overweight and 35.39% obese. There was an increase prevalence of overweight in male patients, whereas women had increase prevalence of obesity. According to BMI, it was noted that, there is an increase prevalence of overweight obesity grade II in subjects between the age group of 51–60 years, while obesity grade I & III in subjects from 41 to 50 years age group.

SBP was elevated in 70% in overweight and obese subjects. SBP is slightly high in male but there is no significant difference between genders (p = 0.84). Regarding to elevated DBP, it affects 35.4% subjects, presenting a greater proportion in males with 42.2% compared to 36.3% females. DBP has highly significant association with respect to male gender (p = 0.009). DBP affects in greater proportion the subjects ranging from 51 to 60 years.

Conclusion: 52.8% of subjects with overweight and obese suffered from hypertension. High SBP has a greater impact in male patients regardless of age. DBP is statistically significant higher in males, specifically when they are in between 51 and 60 years.