Free papers:
Oral presentations

Metabolic syndrome and its components in young healthcare professionals working in a University hospital in Dhaka

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Abstract

Background: Young healthcare professionals (HCPs) are often exposed to stress, shifting duties, and sedentary lifestyles, predisposing them to an increased risk of metabolic syndrome (MetS).

Objective: To assess the frequency of MetS and its components in young HCPs working in a University hospital in Dhaka.

Methods: In this cross-sectional study, 180 young (age <35 years) HCPs were screened by non-probability sampling [39% physicians (residents/medical officers), 61% nurses (staff nurses and nursing students), 75% female, 49% overweight/obese] as part of an ongoing study by 'Study on Diabetes in Young' group, Department of Endocrinology, Bangabandhu Sheikh Mujib Medical University, during Sep'23-Feb'24. The consensus definition developed by the International Diabetes Federation and American Heart Association/ National Heart, Lung, and Blood Institute in 2009 was used to define MetS.

Results: Among the young HCPs, 45 of 180 [25.6% (95% CI 19.4-32.6)] had MetS. The frequency of MetS was higher in physicians than in nurses (37% vs. 18%, p=0.006). Abdominal obesity was present in 66%, while reduced high-density lipoprotein cholesterol, elevated triglycerides, elevated fasting plasma glucose, and elevated blood pressure were present in 36%, 27%, 13%, and 22%, respectively. The majority (36%) had at least one MetS component, while two, three, and four elements were present in 22%, 18%, and 7%, respectively. HCPs with MetS had relatively higher ages (median 31 vs. 26, years), male gender (44% vs. 19%), overweight/obesity (91% vs. 48%), and upper monthly income tertiles (48% vs. 31%) in comparison to non-MetS group (p<0.05 for all). There was no significant difference in the level of physical activity or smoking habit between the two groups (p=ns for both).

Conclusions: One in four young HCPs had MetS, where the most common MetS component was abdominal obesity. MetS was more common in physicians, males, obese, and in the higher income group.
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Keywords: Metabolic syndrome, Young, Healthcare professionals, Bangladesh

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Testosterone and COVID-19: Exploring the association of COVID-19 disease, testosterone deficiency, and erectile dysfunction in men

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Abstract

Background: High expression of ACE2 and TMPRSS2 in testes suggests men's vulnerability to SARS-CoV-2 infection, leading to orchitis, oxidative damage, inflammation, and immunological responses that disrupt the hypothalamic-pituitary-gonadal axis and impaired gonadal steroidogenesis, potentially causing hypogonadism, sexual dysfunction, and infertility.

Objective: To determine the frequency of testosterone deficiency in post-COVID patients and its association with the severity of COVID-19 disease.

Methods: In this cross-sectional study we enrolled 48 post-COVID male patients aged 18-69 years and an equal number of age, BMI, and WC-matched participants as healthy control. After using a questionnaire to enlist participants, we measured total testosterone (TT), luteinizing hormone, follicle-stimulating hormone, SHBG, and albumin, then computed free (cFT) and bioavailable testosterone. Testosterone deficiency (TD) was defined as TT < 264 ng/dl and/or cFT < 220 pmol/L.

Results: The frequency of TD was significantly (25% vs. 8.3%, p=0.028) higher in the post-COVID group than in the healthy control group. The recovered COVID-19 patients had significantly lower total (p=0.034), calculated free (p<0.001), bioavailable testosterone (p<0.001), and higher SHBG (p<0.001) levels in comparison to the healthy individuals. In contrast to post-COVID patients with normal TT levels, patients with TD had significantly greater rates of central obesity (p=0.040), and sexual dysfunction (p=0.011) as well as hospitalizations requiring oxygen therapy (p=0.007) and COVID-19 disease severity (p=0.004). In regression analysis, COVID-19 was a significant predictor of TD [OR=4.295 (p=0.034, 95% CI= 1.115, 16.548)], and moderate to severe COVID-19 disease increased the odds of TD by approximately 10 times [OR=9.950 (p=0.017, 95% CI= 1.513, 65.454)] in the post-COVID group.

Conclusions: Post-COVID male patients were found to have a higher prevalence of TD in comparison to matched control participants. COVID-19 severity was the most significant predictor of low testosterone levels in recovered COVID-19 patients. *[J Assoc Clin Endocrinol Diabetol Bangladesh, 2024;3(Suppl 1): S38]*

Keywords: COVID-19, Testosterone deficiency, Post-COVID

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Status of N-terminal pro-b-type natriuretic peptide and its association with asymptomatic heart failure in type 2 diabetes mellitus

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Abstract

Background: Diabetes mellitus (DM) accounts for one-third of cases of heart failure (HF) and death due to HF. NT-proBNP is used as an alternative tool for the diagnosis of HF. There is limited data on the role of NT-proBNP in asymptomatic HF in people with DM.

Objective: The aim was to determine the role of NT-proBNP in predicting asymptomatic HF in people with DM.

Methods: This cross-sectional study was conducted in the Department of Endocrinology, Bangabandhu Sheikh Mujib Medical University from September 2021 to February 2024. 74 people with DM with asymptomatic HF were recruited by consecutive purposive sampling. Asymptomatic HF was diagnosed according to staging by the American College of Cardiology using echocardiography. Stage A and B were considered as asymptomatic HF. Serum NT-proBNP level was measured by electrochemiluminescence assay.

Results: Serum NT-proBNP level (pg/mL) in the diastolic dysfunction group was significantly higher than the normal diastolic function group (123.5 vs. 41.6, P=0.01). Serum NT-proBNP was higher in moderate/severe diastolic dysfunction participants than the mild diastolic dysfunction participants (1531.0 vs. 112.3). Multiple logistic regression showed serum NT-proBNP was independently associated with diastolic dysfunction. ROC analysis of serum NT-proBNP to predict diastolic dysfunction showed that the AUC was 0.73, which was acceptable discrimination of diastolic function. The cut-off point at which serum NT-proBNP had both the greatest sensitivity (75%) and specificity (72.4%) to predict diastolic dysfunction was 67.2 pg/mL.

Conclusions: Serum NT-proBNP was higher among the diastolic dysfunction than the normal diastolic function group. Moreover, NT-proBNP could be used to predict asymptomatic HF in people with DM. *[J Assoc Clin Endocrinol Diabetol Bangladesh, 2024;3(Suppl 1): S39]*

Keywords: Serum NT-proBNP, Heart failure, Diabetes mellitus

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Frequency and association of OCT1 gene polymorphism (rs628031 & rs2282143) in Bangladeshi women with polycystic ovary syndrome

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Abstract

Background: Organic cation transporter 1 (OCT1) mediates the enterocyte and hepatic uptake of metformin. The polymorphisms of OCT1 may be responsible for variable efficacy and tolerability of metformin.

Objective: To see the frequency and association of rs628031 (1222A>G) and rs2282143 (1022C>T) in Bangladeshi women with polycystic ovary syndrome.

Methods: This observational study was conducted on 163 PCOS and 156 control subjects in the Department of Endocrinology, BSMMU. Genotyping was performed using the Sanger sequencing method for rs2282143 and rs628031 polymorphism. The genotype and allele frequencies were calculated, and the Hardy-Weinberg equilibrium was assessed. The polymorphisms were analyzed for linkage disequilibrium. Clinical and biochemical data were evaluated using the dominant genetic model.

Results: In the PCOS group, the genotype frequencies of rs628031 (1222A>G) and rs2282143 (1022C>T) were consistent with the Hardy-Weinberg equation. There was no association of PCOS with SNP rs628031 (1022A>G) as well as rs2282143 (1022C>T). No significant correlation between PCOS and control in the estimated haplotype frequencies of these two polymorphisms was found. None of the haplotypes could be categorized as risk alleles. Linkage disequilibrium (LD) analysis showed the absence of linkage disequilibrium between rs628031 (1222A>G) and rs2282143 (1022C>T). We observed a significant association between wild and variant genotypes in the PCOS group for the SNP rs2282143, including acanthosis nigricans (p=0.016), insulin resistance (p=0.023), and triglyceride level (p=0.003).

Conclusions: The polymorphisms rs628031 and rs2282143 are common in PCOS and healthy control in the Bangladeshi population. Features of metabolic syndrome (acanthosis, insulin resistance, triglyceride level) may have an association with the studied SNPs in women with PCOS. *[J Assoc Clin Endocrinol Diabetol Bangladesh, 2024;3(Suppl 1): S40]*

Keywords: Polycystic ovary syndrome, Organic cation transporter 1, Bangladesh

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rs1137100 and rs1137101 polymorphism of the LEPR gene is not associated with gestational diabetes in Bangladeshi mothers

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Abstract

Background: Gestational diabetes mellitus (GDM) is common and exerts adverse effects on both mother and fetus. Leptin plays a crucial role in glucose metabolism during pregnancy. Single nucleotide polymorphism (SNP) within the LEPR gene results in an amino acid change in the leptin receptor. Thus polymorphisms of the gene may influence the metabolic condition of the mother and fetus.

Objective: To study the association of rs1137100 and rs1137101 polymorphism of the LEPR gene among GDM mothers.

Methods: This study enrolled 38 women with GDM and 72 controls irrespective of their gestational age based on WHO 2013 criteria. Fasting insulin and leptin were assayed by using a chemiluminescence immunoassay. Genetic samples were stored in an EDTA tube. Genotyping of LEPR rs1137100 & rs1137101 was done using Sanger's di-deoxy chain-terminating method and analyzed using sequencing analysis software. The general association of genotypes with GDM was assessed using multivariate logistic regression analysis using SNPStats.

Results: Fasting insulin (μIU/L) [GDM vs. NGT: 9.09 (4.18-14) vs. 7.48 (3.06-11.9); p=0.015 (median [IQR])] and leptin (ng/mL) [GDM vs. NGT: 170 (57.5-282.5) vs. 118.4 (47.7-189.1); p= 0.031 (median [IQR])] were significantly higher in GDM than NGT. The genotype frequencies of rs1137100-AA/AG/GG in the GDM group and the control groups were 66%/67%, 21%/28%, 13%/6% and those of rs1137101-GA/AA/GG were 84%/71%, 5%/14%, and 11%/15% respectively. The association of these SNPs with GDM was tested under co-dominant, dominant, recessive, over-dominant, and log additive models and revealed no significant ($p>0.05$) association. The linkage disequilibrium analysis (D= -0.066, D'= 0.651, r^2=0.106; $p<0.001$) showed that the SNPs are not in linkage disequilibrium.

Conclusions: We found no significant association between rs1137100 & rs1137101 polymorphism of the LEPR gene with GDM in Bangladeshi mothers. *[J Assoc Clin Endocrinol Diabetol Bangladesh, 2024;3(Suppl 1): S41]*

Keywords: LEPR gene, Leptin, Gestational diabetes mellitus

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Association of serum bisphenol A with insulin resistance in obese adult

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Abstract

Background: Recent evidence suggests that the endocrine-disrupting chemicals especially bisphenol A, the main plastic component disturb body weight regulation and promote obesity and insulin resistance.

Objective: To determine the association of serum bisphenol A with insulin resistance in adults with obesity.

Methods: This cross-sectional study was conducted in the Department of Endocrinology, BSMMU from March 2022 to March 2024, enrolling 67 obese people with insulin resistance and 17 obese subjects without insulin resistance. Obesity was diagnosed based on WHO Expert Consultation 2000 for Asian people. Insulin resistance was measured by the homeostasis model assessment index of insulin resistance (HOMA-IR). Serum BPA was measured using the ELISA method.

Results: The median BPA in all participants was 5.86 (3.55, 9.15) ng/mL. There was no significant difference in serum BPA level between the obese with and without insulin resistance [5.64 (3.41, 8.67) vs. 6.89 (3.57, 10.25), ng/mL, median, p= 0.20]. Serum BPA did not correlate with HOMA IR in the obese with insulin resistance group (r = -0.09, R^2=0.8% p= 0.48) and obese without insulin resistance group (r = - 0.08, R^2=0.6%, p= 0.75). BPA was not a predictor of insulin resistance (OR= 0.64, 95% CI= 0.22 to 1.89, p= 0.42).

Conclusions: Serum BPA was not associated with insulin resistance in obese adults. *[J Assoc Clin Endocrinol Diabetol Bangladesh, 2024;3(Suppl 1): S42]*

Keywords: Bisphenol A, Endocrine disrupting chemical, Insulin resistance, Obesity

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Free paper: Oral presentation

Women with polycystic ovary syndrome have inter-ovarian and inter-criterion association and agreement in the diagnosis of polycystic ovarian morphology

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Abstract

Background: Polycystic ovarian morphology (PCOM) is diagnosed by fulfilling either ovarian volume (OV) or follicle number per ovary (FNPO) criterion in any ovary. However, scanning of a single ovary may detect less PCOM.

Objective: To compare ovaries and two criteria along with their agreements in patients with polycystic ovary syndrome (PCOS).

Methods: This cross-sectional study included 100 women with newly detected PCOS (15 – 39 years) based on revised 2003 Rotterdam criteria. Along with clinical, hormone, and biochemical data ultrasonography of the ovaries (trans-abdominal/transvaginal: 60/40) was done in the follicular phase of the menstrual cycle to measure OV and FNPO by an expert sonologist. Any OV >10 mL or having ≥ 12 FNPO of 2-9 mm was considered PCOM.

Results: OV and FNPO were similar between the ovaries. PCOM had a significant association with total testosterone for both ovaries. OV and FNPO correlated with each other with a strong correlation observed between the FNPO of both ovaries. A moderate (0.41 – 0.60) inter-ovarian (right vs. left) agreement (κ 0.423) and a fair (0.21 – 0.4) inter-criterion (OV vs. FNPO) agreement were observed (κ0.228).

Conclusions: In case of pathology in another ovary, reporting both OV and FNPO of a single ovary may be acceptable in diagnosing PCOM. *[J Assoc Clin Endocrinol Diabetol Bangladesh, 2024;3(Suppl 1): S43]*

Keywords: Polycystic ovary syndrome, Polycystic ovarian morphology, Ovarian volume, Follicle number per ovary

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Association between irregular menstrual cycle and abnormal glycemic status in a nationwide survey

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Abstract

Background: An irregular menstrual cycle (MC) is linked to insulin resistance predisposing to dysglycemia. Data relating irregular cycles with glycemic status are scarce and inconsistent.

Objective: To evaluate the association between irregular MC and glycemic status among reproductive-aged Bangladeshi women.

Methods: This cross-sectional survey was done in all eight administrative divisions of Bangladesh between March and August 2024 among females aged 10 – 45. The sample collection sites were selected by cluster random sampling and participants were enrolled by a systemic random sample technique. Participants underwent history taking, physical examination, and an OGTT in a fasting state. MC was defined by the International Evidence-based Guideline 2023 and glycemic status by WHO, 2006.

Results: Among 1143 females, 474 were excluded for the following reasons: pre-menarche or menopause, gynecological age <1 year, pregnancy/lactation, use of any hormonal contraceptives/steroid/herbal agents, and unavailable fasting &/or OGTT reports. Among the remaining 669 [age (years): 19 (16 – 27); BMI (kg/m2): 20.6 (18.0 – 24.2, median (IQR)], 141 (21.4%) had at least one abnormality in MC and 198 (29.6%) had abnormal glycemic status (AGS: DM- 38 and prediabetes-160). Among different irregular MC definitions, any cycle >90 days had a significant association with AGS after adjusting age group, BMI category, and family history of diabetes.

Conclusions: Irregular MC might be associated with AGS. *[J Assoc Clin Endocrinol Diabetol Bangladesh, 2024;3(Suppl 1): S44]*

Keywords: Menstrual cycle, Abnormal glycemic status, Bangladeshi

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Islet autoantibody and beta-cell secretory status at diagnosis in Bangladeshi youth with phenotypical type 2 diabetes

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Abstract

Background: Variable auto-immunity and beta-cell dysfunction leading to diagnostic difficulties and proper management in youth onset type 2 diabetes (T2DM).

Objective: To see the frequency of islet autoantibodies and beta-cell secretory status in phenotypical T2DM in young.

Methods: This cross-sectional study enrolled 83 newly diagnosed youth-onset phenotypical T2DM subjects by non-probability purposive sampling in the Endocrinology department, Bangabandhu Shiekh Mujib Medical University (BSMMU) Dhaka. C-peptide, anti-glutamic acid decarboxylase (GAD) Ab, and Islet Antigen 2 (IA2) were measured by chemiluminescence and Zn transporter 8 (ZnT8) Ab by ELISA.

Results: There was adequate beta cell secretory reserve [median C-peptide 4.3 ng/mL (IQR: 3.0-6.7)] in the majority of subjects 97.6% (80/82). GADAb was found in 17% (14/82), ZnT8 Ab in 2.5% (2/82) and none was positive for IA2 Ab or double antibody (ZnT8 Ab+ GAD Ab). The frequency of double diabetes (DD) [GAD Ab positive subjects] was 17% (14/82). HOMA-B was significantly lower [24.7 (16.3-99.1) vs. 81.9 (30-154), p=0.02] and FPG was significantly higher [16 (10-19) vs. 9.5 (6.7-14.5) mmol/L, p=0.04; median (IQR)] in GADAb positive than those of negative group. There was a significant negative correlation between age (r=-0.18, p=0.02) and HOMA-B (r=-0.17, p=0.02) with GADAb level and a positive correlation between HbA1c (r=0.14, p=0.04) with GAD Ab level.

Conclusions: GADAb was the most commonly detectable antibody in this study group. The concentration of GADAb may dictate phenotypic presentation. Beta cell secretory reserve was adequate in the majority of subjects. GADAb was not a predictor of secretory status, measured by C-peptide. *[J Assoc Clin Endocrinol Diabetol Bangladesh, 2024;3(Suppl 1): S45]*

Keywords: Young diabetes, Phenotypical T2DM, Islet autoantibodies, C-peptide

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Utility of synacthen-stimulated 17-hydroxyprogesterone test to detect non-classic congenital adrenal hyperplasia among women with suspected polycystic ovary syndrome

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Abstract

Background: Women with non-classic congenital adrenal hyperplasia (NC-CAH) are indistinguishable from other mild hyperandrogenic conditions like polycystic ovary syndrome (PCOS).

Objective: To differentiate NC-CAH from PCOS among suspected women with PCOS by basal and ACTH-stimulated 17-hydroxyprogesterone (17OH-P).

Methods: This cross-sectional study was done among 100 women aged 18 – 35 years with clinically suspected PCOS following the 2018 international evidence-based guidelines of PCOS. Fasting blood was drawn to measure total testosterone (TT), sex hormone-binding globulin, dehydroepiandrosterone sulfate, insulin, cortisol, ACTH, and 17-OHP during the follicular phase of the menstrual cycle. In all participants, 250 µg of synacthen injection was given intramuscularly and after one hour, blood was again drawn to measure 17-OHP and cortisol. All hormones were analyzed by chemiluminescent microparticle immunoassay. Basal 17OH-P below 2 ng/mL was labeled as PCOS and ≥2 ng/mL was considered screened positive for NC-CAH. ACTH-stimulated 17-OHP ≥10 ng/mL was categorized as NC-CAH and below 10 ng/mL was labeled as probable NC-CAH among screen-positive cases.

Results: Among 100 women with suspected PCOS, only 2 had NC-CAH, 35 had probable NC-CAH, and 63 had PCOS. The two patients with NC-CAH had numerically higher levels/ frequencies of hyperandrogenism but lower levels/frequencies of metabolic features than the rest of the study participants. Significantly higher levels/ percentages of the clitoral index (mm2) [10.0 (6.0 – 45.0) vs. 6.0 (6.0 – 12.0), p= 0.020], clitoromegaly [28.6% vs. 6.3%, p= 0.003], and total testosterone (ng/dL) [80.5 (46.4 – 110.2) vs. 57.0 (40.5 – 87.4), p= 0.043] were found in those with probable NC-CAH than PCOS.

Conclusions: The frequency of NC-CAH was low among suspected women with PCOS. However, the probable cases may require further genetic analysis for confirmation. The synacthen-stimulated 17-OHP test may be useful only among women with higher androgenic but lower metabolic features. *[J Assoc Clin Endocrinol Diabetol Bangladesh, 2024;3(Suppl 1): S46]*

Keywords: Non-classic congenital adrenal hyperplasia, 17-hydroxyprogesterone, clitoromegaly, polycystic ovary syndrome

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Efficacy and tolerability of once-weekly subcutaneous semaglutide for weight management: A prospective follow-up study from Bangladesh (preliminary report)

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Abstract

Background: Semaglutide is a well-known drug for long-term weight management but its efficacy and side effects are not well documented in a prospective follow-up study in Bangladesh.

Objective: To assess weight-reducing efficacy and side effects of once-weekly subcutaneous Semaglutide at different doses with 3 months follow-up.

Methods: Subjects with obesity, intended to lose weight, and having no contraindication of Semaglutide were included in the study. Semaglutide 0.25mg was introduced for the first 4 weeks followed by 0.5mg, and 1.0mg on subsequent follow-up based on tolerability and side effects. Clinical parameters were recorded at baseline and each follow-up. Face-to-face interviews were taken and possible side effects at different doses were recorded in a structured data collection sheet.

Results: This preliminary report, included 22 patients (19 females [86.4%]; mean [SD] age, 32.8[8.1] years; mean [SD] BMI, 34.7[3.9]). On monthly follow-up in the 1st, 2nd, and 3rd months, follow-up completed 22, 17, and 13 patients respectively. Mean weight loss from baseline at 1st, 2nd, and 3rd follow-ups were 3.5±1.6 (2.8-4.3); 7.1±2.2 (6.0-8.3); 10.3±1.7 (9.2-11.3), 95% CI; $p<0.0001$, respectively. About 86.4% of the study population lost ≥10% of initial body weight at 3rd Follow-up. Regarding side effects, 50.0%, 64.7%, and 92.3% of patients reported any side effects; 4.5%, 5.9%, and 23.1% of patients developed serious side effects at a mean dose of 0.25, 0.5, and 1.0mg during follow-up. Most of the side effects were GIT origin, commonly anorexia, nausea, vomiting, diarrhea, and acid reflux. While a significant proportion (30.7%) of patients reported hair fall on 1.0mg Semaglutide. Among the major side effects, two patients developed hypoglycemia (DM=1, non-DM=1), and one developed cholelithiasis. No mortality was reported during the follow-up.

Conclusions: The use of Semaglutide was associated with significant weight loss, however; side effects were the main obstacle in dose optimization. *[J Assoc Clin Endocrinol Diabetol Bangladesh, 2024;3(Suppl 1): S47]*

Keywords: Semaglutide, Obesity, Cholelithiasis

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Metabolic profile and glycemic status after 5 years of index pregnancy with gestational diabetes mellitus

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Abstract

Background: The prevalence of gestational diabetes mellitus (GDM) is increasing in Bangladesh parallel to the trend noticed in South-East Asia. Women with previous GDM have a higher risk of developing adverse metabolic outcomes in the form of type 2 diabetes (T2DM), metabolic syndrome, and cardiovascular disease in comparison to women without GDM.

Objective: To observe the metabolic profiles and glycemic status of women with a history of GDM after 5 years of index pregnancy.

Methods: In this hospital-based cross-sectional study, 110 women with a history of GDM and 90 women without GDM were enrolled for follow-up including oral glucose tolerance test and fasting lipid profile after 5 years of index pregnancy. Metabolic syndrome was diagnosed by the IDF criteria. Results were described in frequencies or percentages. Binary logistic regression analysis was done to predict the variables influencing metabolic abnormalities in GDM and NGT mothers after 5 years of index pregnancy.

Results: Although the groups did not differ in baseline characteristics ($p>0.05$), the risk of metabolic syndrome after 5 years of index pregnancy complicated by GDM was significantly higher than after normal pregnancy 59 vs. 33 ($p=0.0146$). GDM was associated with an odds ratio of 2.998 (95% CI 1.62-5.53) for abnormal glucose tolerance (p 0.005) and 7.59 (95% CI 3.15-18.32) for T2DM ($p <0.001$). Binary logistic regression analysis showed a previous history of GDM ($\beta= 0.667$, $p= 0.032$) and BMI ($\beta = -0.135$, $p=0.001$) were independent risk factors for metabolic syndrome.

Conclusions: The risk of metabolic syndrome and T2DM is significantly higher in women with previous history of GDM. *[J Assoc Clin Endocrinol Diabetol Bangladesh, 2024;3(Suppl 1): S48]*

Keywords: Metabolic syndrome, Gestational diabetes mellitus, Type 2 diabetes mellitus

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Free paper: Oral presentation

Frequency of prediabetes and diabetes among overweight and obese urban high school adolescent students

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Abstract

Background: There is a scarcity of literature about the frequency of prediabetes and diabetes among overweight and obese adolescents in Bangladesh.

Objective: To estimate the frequency of prediabetes and diabetes among overweight and obese adolescent (10-19 years) students in high schools of Dhaka City, Bangladesh.

Methods: This cross-sectional study was carried out in different high schools in Dhaka City, Bangladesh. Among 1560 students screened, 454 students were found overweight and obese. Out of them, 272 students were enrolled in this study. Using a pre-tested questionnaire, data were collected on socio-demographic information, physical activities, digital screen time, and fast food intake. In addition, clinical examinations including anthropometric measurements and HbA1c test were done.

Results: Out of 272 overweight and obese adolescent students, the frequency of prediabetes and diabetes was 61.8% and 1.8% respectively. The mean HbA1c was 5.7 (± 0.43). Among participants, 74.6% were found physically inactive, 53.7% were found to spend 2 hours or more on digital screen daily and 48.16% participants used to eat fast food 3 or more days/week. Hypertension, abdominal obesity and acanthosis nigricans were found in 9.2%, 35.7% and 83.1% of the participants respectively. Significant association was found between glycemic status and risk factors like fast food intake, digital screen time, abdominal obesity, and acanthosis nigricans.

Conclusions: The high frequency of prediabetes found in our study among overweight and obese adolescent high school students, is very alarming. Risk based screening programs should be carried out at school level as well as awareness programs focusing on increasing physical activity, reduction of digital screen time and fast food intake among adolescents need to be conducted. *[J Assoc Clin Endocrinol Diabetol Bangladesh, 2024;3(Suppl 1): S49]*

Keywords: Adolescent, Overweight, Obesity, Prediabetes, Diabetes, HbA1c

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A tale of two diseases: Exploring the link between COVID-19 severity and new-onset dysglycemia in Bangladeshi patients

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Abstract

Background: While pre-existing diabetes is a known risk factor for severe COVID-19, recent evidence suggests that severe COVID-19 may also significantly contribute to the development of new-onset dysglycemia. This relationship remains largely unexplored in Bangladesh.

Objective: To determine the association between COVID-19 severity and the development of new-onset dysglycemia (diabetes and prediabetes) among Bangladeshi patients, and to identify clinical factors associated with this relationship.

Methods: A cross-sectional analysis was conducted on 88 patients who visited post-COVID OPD and the Department of Endocrinology at Bangabandhu Sheikh Mujib Medical University (BSMMU) between July 2021 and June 2022. Patients were categorized based on COVID-19 severity (mild/moderate vs. severe) and assessed for new dysglycemia using oral glucose tolerance tests (OGTT) and HbA1c measurements within 6 months of infection. Glucose was measured using glucose-oxidase and HbA1c by ion exchange high-performance liquid chromatography (HPLC) method.

Results: The study found no major baseline differences except for vaccination status (lower in severe cases, p=0.00) and residence (more urban in severe cases, p=0.02). Severe cases showed trends towards higher inflammation markers and lower lymphocyte levels (p=0.11 and p=0.03, respectively). During follow-up within 6 months, severe cases had significantly higher fasting blood glucose and 2 hours after glucose load during an OGTT (p=0.05 & p=0.01) but similar HbA1c (p=0.553). The prevalence of prediabetes was significantly higher in the severe group (p=0.047). Overall, 63.6% of severe cases had dysglycemia compared to 31.17% in mild/moderate cases (p=0.04), suggesting a link between COVID-19 severity and new-onset dysglycemia.

Conclusions: Severe COVID-19 is significantly associated with new-onset dysglycemia, particularly prediabetes. Non-vaccinated, urban residents, and lower lymphocyte levels were risk factors. Further research is needed to understand the underlying mechanisms. *[J Assoc Clin Endocrinol Diabetol Bangladesh, 2024;3(Suppl 1): S50]*

Keywords: COVID-19, Dysglycemia, Prediabetes, Diabetes mellitus

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