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Bone turn over markers in gestational diabetes mellitus: A pilot study

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Gestational diabetes mellitus (GDM), defined as impaired glucose intolerance with commencement or recognition during pregnancy affects ~14% of pregnancies. GDM affects maternal, fetal and neonatal well being and is allied with elevated threat of cesarean section and the later advancement to Type 2 diabetes. Hyperglycemic aura in GDM may affect bone via alteration in bone structure, bone density, and markers of bone turnover. The study focused on evaluating the associations of four bone turnover markers (25-hydroxyvitamin D, parathyroid hormone alkaline phosphates and serum calcium) with GDM subjects in a population-based pilot study. Fifty subjects with normal pregnancy and fifty with gestational diabetes mellitus were clinically scrutinized for detailed history and physical examination. Among bone turn over markers parathyroid hormone was significantly raised in GDM patients when compared with normal pregnant females (p=<0.001), whereas 25(OH) D was significantly reduced in GDM subjects. There was no observable significant disparity in ionized calcium between the two groups whereas alkaline phosphates was significantly raised in GDM females (p=0.0038). Linear regression evaluated a significant negative co-relation between PTH and 25(OH) D concentration in hyperglycemic pregnant subjects (r=-0.9037, p=<0.05). Our study shows high prevalence of obesity, hypovitaminosis D and hyperparathyroidism, in females with GDM, in comparison to females without GDM. Pregnancy is a high-bone-turnover state due to increased fetus demands, putting strain on adapting maternal skeleton. Our study concludes that subjects with low 25(OH) D levels can have secondary hyperparathyroidism which can increase insulin resistance and leads to hyperglycemic state. Identifying markers of bone turnover offer a noninvasive and clinically relevant method of monitoring changes in bone during pregnancy and highlight the need of estimation in early pregnancies.

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Apelin, nitric oxide and vascular affection in adolescent type 1 diabetic patients

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Objective: We are aiming to evaluate apelin and nitric oxide (NO) in type 1 diabetic patients and its relation to vascular affection.

Patients & Methods: The study included 62 type 1 diabetic patients and 30 healthy volunteers of the same age and sex. Blood samples were taken for assessment of apelin, NO, glycosylated hemoglobin, and lipid profile. Urine samples were taken for assessment of albumin/creatinine ratio. Flow mediated dilatation (FMD) via ultrasound was done.

Results: The study included 62 patients with type 1 diabetes, their mean age were 16.3±1.5 yrs (14.0–19.0 yrs), and mean duration of diabetes were 9.4±2.9 yrs (5.0–16.5 yrs). FMD and FMD/ nitrate mediated dilatation (NMD) ratio were significantly lower in diabetics. Nitric oxide was significantly lower, while apelin and albumin/ creatinine ratio were significantly higher than controls. No significant correlation was found between apelin, NO, FMD, albumin/creatinine ratio or BMI.

Conclusion: Diabetic patients had endothelial dysfunction and elevation of apelin, but they does not related to each other. BMI had no relation to apelin which indicate that obesity had no role to apelin. Further large study is recommended to detect the relationship of apelin with vascular affection by assessing large number of diabetics with and without complication.

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