

Design Cohort study.

Setting Women's Hospital.

Subjects and methods A representative sample of 1,608 women expressed their consent to study. Questionnaire covered variables related to socio-demographic factors, family history, medical history, maternal complications and neonatal outcome.

Results The prevalence of GDM in Qatar was 16.3%. Women with GDM were significantly higher in the age group of 35–45 years (45%; $p=0.001$). Family history of DM (31.7%; $p<0.001$), increased parity (55.3%; $p=0.004$) and obesity (59.2%; $p<0.001$) were determinants of GDM in pregnant women. Maternal complications like pregnancy induced hypertension (19.1% vs 10.3%; $p<0.001$), pre-eclampsia (7.3% vs 3.8% $p=0.012$), antepartum hemorrhage (19.2% vs 14.6%; $p=0.05$) and Caesarean (27.9% vs 12.4%; $p<0.001$) were significantly higher in GDM women. Neonates were at increased risk of preterm birth (12.6% vs 8.3%; $p=0.03$), macrosomia (10.3% vs 5.9%; $p=0.01$) and birth trauma (8% vs 3%; $p<0.001$). Advanced age group ($p=0.001$), obesity ($P<0.001$), Family history of DM ($P<0.001$) Macrosomia ($p=0.05$), Antepartum hemorrhage ($p=0.001$), Caesarean ($p<0.001$) were the significant associated factors for GDM.

Conclusion The GD was higher in women and they were at increased risk of developing maternal and neonatal complications. The advanced maternal age, family history of diabetes, macrosomia, obesity and caesarean delivery were the main significant associated risk factors for GDM.

641 CLINICAL AND EPIDEMIOLOGIC CHARACTERISTICS OF TYPE 1 DIABETES IN CHILDREN IN A PEDIATRIC UNIT FROM SFAX (TUNISIA)

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H Aloulou, S Kmiha, I Maaloul, L Sfaïhi, I Chabchoub, T Kammoun, M Hachicha. *Pediatric, Hedi Chaker Hospital, Sfax, Tunisia*

Introduction During the last few decades, an increase in the incidence of type 1 diabetes (DT1) in children was reported in most parts of the world.

Aims Study the epidemiologic and clinical particularity of (DT1) in our patients.

Patients and methods From 2000 to 2011, children under 15 years with newly diagnosed type 1 diabetes mellitus and drawn from department of pediatrics in Sfax were ascertained retrospectively. Cases of neonatal diabetes were excluded. Patients were divided on 3 groups: group 1: less than 5 years (107 cases), group 2: 5–10 years (120 cases), group 3: 10–16 years (98 cases).

Results The incidence was 27 new cases/year (17–34 cases). There were 166 boys - 159 girls. Median age at diabetes onset was 7 years and 7 months. Twenty three percent of the children had a familial history of diabetes type 1 significantly more frequent in group 1. Fifty two percent of all cases were diagnosed in the cold season. The age at introduction of cow milk in alimentation was less than 6 months in 54.4%. Cereals were introduced in alimentation at an age less than 3 months in 12.3% of cases. Ketoacidosis revealed diabetes in 55.7% of cases, significantly more frequent in group 1 (66.3%), polyuria and polydipsia were more frequent in group 3 (98%). Hypoglycemia was more frequent in group 1.

Conclusion Significant advances have been made in the clinical care, epidemiologic studies have an important on-going role to investigate the complex causes.

642 POTENTIAL PROTECTIVE EFFECTS OF TRIGONELLA FOENUM GRAECUM AND SODIUM ORTHOVANADATE IN HYPERGLYCEMIA-INDUCED ALTERATIONS IN CARDIAC MEMBRANE IN ALLOXAN DIABETIC RATS

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P Kumar, RK Kale, NZ Baquer. *School of Life Sciences, Jawaharlal Nehru University, New Delhi, India*

Objectives Oxidative stress in diabetic tissues is accompanied by high level of free radicals and the simultaneously declined antioxidant enzymes status leading to cell membrane damage. In the present study, the effect of sodium orthovanadate (SOV) and *Trigonella foenum graecum* seed powder administration has been studied on blood glucose and insulin levels, membrane bound ATPases (Na+K+ATPase, Ca²⁺+ATPase), antioxidant enzymes (superoxide dismutase, glutathione S-transferases), lipid peroxidation, lipofuscin accumulations and distribution of glucose transporter (GLUT4) in heart of the alloxan induced diabetic rats and to see whether the treatment with SOV and *Trigonella* is capable of reversing these effects.

Methods Diabetes was induced by administration of alloxan monohydrate (15mg/100g b.wt.) and female rats were treated with 2IU insulin, 0.6mg/ml SOV, 5% *Trigonella* in the diet and a combination of 0.2mg/ml SOV with 5% *Trigonella* separately for 21 days.

Results Diabetic rats showed hyperglycemia with almost four fold high blood glucose levels. Hyperglycemia increases lipid peroxidation and lipofuscin accumulations, causing decreased activities of membrane bound ATPases, antioxidant enzymes and GLUT4 expression with diabetes in the rat heart. Rats treated with combined dose of vanadate and *Trigonella* had glucose levels comparable to controls, similar results were obtained with the activities of antioxidant enzymes, membrane bound ATPases, lipofuscin, lipid peroxidation and GLUT4 in diabetic rats.

Conclusion Our results showed that lower doses of vanadate (0.2mg/ml) could be used in combination with *Trigonella* to effectively counter diabetic alterations without any toxic side effects.

643 ELEVATED ACETOACETATE, OXIDATIVE STRESS AND MCP-1 LEVELS IN CORD BLOOD OF INFANTS OF DIABETIC MOTHERS

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D Kurepa, A Pramanik, L Groome, J Bocchini, S Jain. *LSUHSC, Shreveport, LA, USA*

Background Infants of diabetic mothers (IDM) are at increased risk for metabolic complications. Type 1 and some type 2 diabetic patients have elevated levels of ketone bodies acetoacetate (AA) and β -hydroxybutyrate (BHB) in addition to hyperglycemia. The effect of ketonemia on the inflammatory markers in infants of diabetic mothers is unknown.

Objective The aim of this study is to examine how hyperketonemia in diabetic mothers affects markers of inflammation and oxidative stress in their offspring.

Methods Blood was obtained from 23 diabetic mothers and 13 healthy mothers, and their infants' umbilical cords at the delivery. IL-8, MCP-1 and protein carbonyl (protein oxidation) levels were determined by ELISA. U937 human monocyte cell culture was used to examine the effect of AA and BHB on secretion of MCP-1.

Results There was a significant increase in the levels of AA in cord blood of diabetic mothers compared with cord blood of healthy mothers. A significant increase in the levels of protein oxidation ($p<0.05$) and MCP-1 levels ($p<0.05$) were observed in the cord blood of IDMs. The level of MCP-1 significantly correlated ($r=0.51$, $p=0.01$) with the concentration of AA in the IDM. In further experiments with cultured monocytes treated with exogenous AA (0–4 mM), a significant increase in MCP-1 secretion was observed with AA but not in BHB-treated monocytes.

Conclusion This study suggest that blood levels of AA, oxidative stress and MCP-1 are elevated in IDM, which may contribute to the development of the metabolic complications seen in IDM.