Conclusions These preliminary results show that children to mothers with bipolar disorder, with or without intrauterine exposure to lithium, had a normal to high IQ at preschool age. 5 more children have been tested, results to be analyzed, and additional children will be recruited.

637 PRENATAL EXPOSURE TO HYDROXYLATED POLYCHLORINATED BIPHENYLS IS ASSOCIATED WITH THE QUALITY OF THE MOTOR REPERTOIRE IN THREE-MONTH-OLD INFANTS

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Background and Aim Polychlorinated biphenyls (PCBs) are ubiquitous environmental toxins, potentially toxic to the developing brain. Hydroxylated PCBs (OH-PCBs) are suggested to be even more toxic because of hydroxylation by the fetus and active transplacental transport of OH-PCBs. Still, little is known about their short-term health effects in humans. We aimed to determine whether prenatal exposure to OH-PCBs is associated with the neurological condition in three-month-old infants, assessed by the quality of the motor repertoire.
Methods In a Dutch observational cohort study, 97 mother-infant pairs participated. Cord blood samples were analyzed for PCB and OH-PCB concentrations. The quality of the motor repertoire was evaluated at 3 months from video-recordings. We determined the quality of General Movements (GMs) and calculated a Motor Optimality Score (MOS) ranging from 5 to 28 (low to high optimality). We explored correlations between PCB/OH-PCB levels and MOS using Spearman's Rank correlation. Next, we tested whether PCB/OH-PCBs levels differed between infants with 'low' (<26) and 'high' MOS (≥26).
Results We found no association between PCB/OH-PCB levels and the quality of GMs. Associations existed between several PCB/OH-PCB levels and MOS, including detailed aspects of the motor repertoire. High 4-OH-PCB-107 levels were associated with a low MOS (P=0.013). High PCB-187 levels were associated with reduced midline arm and leg movements (P=0.047 and P=0.043, respectively).
Conclusion Prenatal exposure to higher 4-OH-PCB-107 levels was associated with a non-optimal quality of the motor repertoire in three-month-old infants. This negative effect may be mediated by reduced thyroid hormone concentrations in the brain.

638 IMPACT OF WATCHING TV/PLAYING GAMES ON MENTAL HEALTH AND LEARNING OF UAE CHILDREN

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Background United Arab Emirates (UAE) is a rapidly changing society, and little is known about the children's free-time activities and their interference with the development and behavior. The recommendations of the American Academy of Pediatrics (AAP) state that children older than 2 years should watch quality television (TV) programs not more than 2 hours per day; and those younger than 2 years should avoid any TV viewing. Previous studies linked early TV viewing with later developmental and behavioral problems.
Aims Esstimate average amount of daily time of TV/video games viewing in UAE children; and sociodemographic, behavior and other variables associated with TV/video games viewing.
Methods In a case control study, 211 school children (68% males, mean age 8.7 years) from United Arab Emirates were investigated. The children with developmental and behavioral disorders (n=98) were compared with children without any developmental and behavioral disorders (n=113) in regard to the time of watching TV/video games per day.
Results children who watched TV/playing games over 2 hours/day had significantly ADHD and higher total CBCL scored than the children who watched TV/playing games less than 2 hours/day. The two groups also differed on the following CBCL subscales: withdrawn, attention, aggressive and delinquent behavior. In terms of learning abilities and IQ levels were did not differed from the children who watched TV/playing games less than 2 hours/day.
Conclusions 1/3 of children in UAE viewed TV/video games for more than the recommended 2 hours per day which found to be associated more with behavioral problems.

639 HIGH INCIDENCE OF CHILDHOOD TYPE 1 DIABETES IN QATAR BETWEEN 2006 AND 2011

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The overall age-adjusted incidence of type 1 diabetes varied from 0.1/100,000 per year in China and Venezuela to 36.8/100,000 per year in Sardinia and 36.5/100,000 per year in Finland. This represents a 350-fold variation in the incidence among the 100 populations worldwide.
Objective The aim of this study was to determine the incidence of type 1 diabetes among children aged 0–14 years in Qatar.
Research design and methods This was a prospective cohort study of the incidence of childhood type 1 diabetes in children aged 0–14 years who were diagnosed with type 1 diabetes from 2006 to 2011 on Qatar. Identified case subjects during this time period were ascertained from several sources and verified using the capture-recapture technique. Data were obtained from the only pediatric diabetes treatment center, Hamad Medical Center (HMC) for children living in Qatar.
Results Over the study period, 385 children aged 0–14 years in Qatar were diagnosed with type 1 diabetes. The incidence of type 1 diabetes in this population over the period 2006–2011 inclusive was 23.11 with a 95% CI of 31.82–40.03.

Abstract 639 Table 1

Year	Incidence/100000
2006	18.63
2007	30.64
2008	21.64
2009	22.91
2010	21.22
2011	23.64

Conclusions Qatar has a relatively high incidence of type 1 diabetes compared to incidences reported worldwide. The incidence increased over the 16-year study period.

640 PREVALENCE OF GESTATIONAL DIABETES AND ASSOCIATED MATERNAL AND NEONATAL COMPLICATIONS IN A FAST DEVELOPING COMMUNITY: GLOBAL COMPARISONS

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Objective To determine the prevalence of Gestational diabetes, compare the maternal-neonatal complications among women with GDM and non-GDM pregnant women and investigate the risk factors associated with GDM.

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), preclampsia (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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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 word.
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 drown from department of pediatrics in Sfax were ascertained retrospectively. Cases of neonatal diabetes were excluded. Patients were devised 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 7months. 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 3months 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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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, Ca^2+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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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.