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EP180

Post load insulin vs fasting levels in prediction of type 2 diabetes in women with PCOS

Mirjana Sumarac-Dumanovic[1,2], Dragan Micic[1,2], Danica Stamenkovic-Pejkovic[1,2], Ana Gligic[2], Danka Jeremic[2], Jelena Milin-Lazovic[1] & Goran Cvijovic[1,2]
[1]School of Medicine, University of Belgrade, Belgrade, Serbia; [2]Clinic for Endocrinology, Diabetes and Diseases of Metabolism, Belgrade, Serbia.

Introduction
Women with polycystic ovary syndrome (PCOS) are at increased risk of developing insulin resistance (IR) and T2DM. In this study, we attempted to detect IR parameters that could be the best predictor T2DM in PCOS comparing to controls.
Description of methods/design
In 130 women with PCOS (BMI = 29.7 ± 0.66 kg/m^2; age: 25.6 ± 0.59 years) and 41 controls (age and BMI matched) (BMI = 28.5 ± 1.35 kg/m^2; age: 26.5 ± 0.89 years) OGTT and IVGTT (minimal model analyses) were performed. All women has normal fasting glucose, but 16 PCOS women had post load glucose level (120 min) over 7.8 mmol/l.
Results
After excluding PCOS women with IGT, there was no difference between fasting glucose, but glucose at 2 h (OGTT) were still higher in PCOS ($P < 0.05$). Fasting insulin was significantly higher in PCOS (PCOS vs control) (17.02 ± 1.07 vs 12.54 ± 1.72) as well as insulin at 120 min of OGTT (86.85 ± 7.18 vs 56.31 ± 10.57). There was no statistically significant difference between areas under insulin curve between two groups (10417.12 ± 733.14 vs 8098.36 ± 1098.2). Minimal model confirmed no difference in IV glucose tolerance (kg) between PCOS and controls and in acute insulin response (AIR). Si parameter of insulin sensitivity was significantly lower in PCOS (2.46 ± 0.18 vs 3.59 ± 0.39). Disposition index (DI) were significantly higher in controls (166.57 ± 13.9 vs 220.89 ± 33.47). Additional analyses of two PCOS subgroups with normal (NGT) and impaired glucose tolerance (IGT) showed: significant lower Si in IGT subgroup, not different AIR, lower DI. The best correlation with Si (from minimal model) showed OGIS (0.490, $P < 0.01$) (glucose 0.90 i 120 min and insulin at 0 and 90 min), weaker correlation showed HOMA index (0.271; $P < 0.01$) and fasting insulin (−0.247, $P < 0.01$).
Conclusion
These insulin sensitivity indexes could be potentially used to identify subgroups of insulin resistant PCOS women with increased risk of T2DM. Our result suggests that indexes included basal and post load glucose and insulin constitute a more sensitive tool for screening metabolic abnormalities in PCOS.

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EP181

Ameliorated effects of allium sativum against bisphenol A-induced reproductive toxicity in male rats

Mokhtar Ibrahim Yousef[1], Al-Sayeda A Newairy[2], Afrah F Salama[3] & Shaimaa E M Saber[3]
[1]Department of Environmental Studies, Institute of Graduate Studies and Research, Alexandria University, 163 Horreya Avenue, Chatby 21526, PO Box 832, Alexandria, Egypt; [2]Department of Biochemistry, Faculty of Science, Alexandria University, Alexandria, Egypt; [3]Chemistry Department, Biochemistry Section, Faculty of Science, Tanta University, Tanta, Egypt.

There is growing evidence that bisphenol A (BPA) may adversely affect humans. BPA is an endocrine disruptor that has been shown to be harmful in laboratory animal studies. A comprehensive literature search found 91 studies linking BPA to human health; 53 published within the last year. This body of literature is showing associations between BPA exposure and adverse perinatal, childhood, and adult health outcomes, including reproductive and developmental effects, metabolic disease, and other health effects. These studies encompass both prenatal and postnatal exposures, and include several study designs and population types. But until recently, there were relatively few studies examining the effect of BPA on sperm quality and the protective effects of antioxidants against its reproductive toxicity. Thus, present examination tries to assess powerful antioxidant garlic against BPA. Rats were assigned to one of four groups: 0 mg BPA and 0 g garlic/kg BW (control); 2 g garlic/kg BW; 40 mg BPA/kg BW; BPA plus garlic. Rats were orally administered their respective doses daily for 70 days. BPA caused deterioration in semen characteristics and histological changes in testes. Body weight, plasma acid phosphatase, LH and FSH were increased, while total proteins, testosterone and sex organ weights (testes, epididymis, prostates and seminal vesicles) were significantly decreased. BPA increased thiobarbituric acid-reactive substances (TBARS) and decreased the activities of the antioxidant enzymes. Testicular 17-ketosteroid reductase, acid phosphatase and protein content were decreased, while 17β-hydroxysteroid dehydrogenase was increased. Garlic alone reduced TBARS, induced the activities of the antioxidant enzymes and improved semen characteristics. Administration of garlic with BPA intoxicated rats reduced the testicular toxic condition, morphological and biochemical changes were brought back to normal. In termination, antioxidant potential of garlic, ameliorates the changes that are induced by BPA.

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EP182

Is serum estradiol really increased in patients with Klinefeler syndrome? Results from a meta-analysis study

Daniele Santi, Sara Scaltriti & Vincenzo Rochira
Unit of Endocrinology, Department of Biomedical, Metabolic, and Neural Sciences, University of Modena and Reggio Emilia, Azienda USL of Modena, Modena, Italy.

Background and aim
KS has been classically described as characterized by hyperestrogenism and elevated serum E_2 together with increased gonadotropins and low-to-normal serum testosterone (T). In literature, data on increased serum E_2 are not solid. The aim of this study is to meta-analyse data from studies evaluating serum E_2 in both KS and healthy subjects (HS) in order to verify if E_2 is increased in KS.
Methods
An extensive MEDLINE was performed using 'PubMed' with the following key words: 'KS' and 'E_2' or 'T' or 'sex steroids' from 1946 to January 2015 (current contents-ISI was used for searching oldest studies). All studies (case–control, case–series, case–reports) reporting E_2 measurement were considered. Controlled–studies were used for meta-analysis, the others only for reviews. Only serum E_2 at baseline (no ongoing treatments) was included. Meta-analysis was conducted according to the PRISMA statement using RevMan.
Results
Out of 956 articles, 26 case–control studies, 15 case–series and 21 case–reports had data on serum E_2. A total of 878 KS and 1000 HS were included in the meta-analysis. Serum E_2 was significantly higher in HS than in KS, with a mean difference of 7.93 pg/ml (CI: 2.24, 13.61; $P = 0.006$), with a $\chi^2 = 688.32$ (I-square = 97%). Serum T was significantly lower in KS than in HS, with a mean difference of −2.79 ng/ml (CI: −3,46, −2,11; $P < 0.001$), with a $\chi^2 = 198,29$ (I-square = 89%). Data from case–series and case–reports confirmed that E_2 is not above the normal range in KS.
Conclusions
Serum E_2 is not increased in KS and is significantly lower than in HS in this meta-analysis. The limits of this study are the heterogeneity of methods for steroids measurement and the lack of studies having the comparison of serum E_2 between KS and HS as primary endpoint. The traditional belief that KS is associated to elevated E_2 should be reconsidered together with some pathophysiological and clinical issues.

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EP183

Relationship between diabetes mellitus type 1 and male reproductive function

Sandro La Vignera
Department of Clinical and Experimental Medicine, Catania, Italy.

Diabetes mellitus type 1 (DM1), an autoimmune disease, affects an increasing number of young men in reproductive age. It has been estimated that its

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