Poster Presentations

02P−1

Can Basal Lactate be Used as a Biochemical Marker for Type 2 Diabetes Development?

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Objectives: Adiposity is a well-known indicator of the relative risk of Type 2 diabetes mellitus development. While maintaining a low body fat percentage is integral in reducing the chance of diabetes development, basal lactate provides a more accurate and detailed insight to the metabolic disease progression. Research has proven that there is a marked increase in lactate concentration in patients with Type 2 diabetes.
Method: Two groups were selected consisting of 19 athletes and 16 non-athletes. They were allowed to fast overnight then a resting (basal) lactate concentration was measured using the Lactate Plus analyser. Their body fat percentages were then measured using the BodyMetrix machine as well as the Harpenden skinfold caliper.
Results: The mean basal lactate and mean body fat percentage for the athletes were 1.53 mmol/L ± 1.23 mmol/L and 8.29% ± 5.42%, respectively and 1.69 mmol/L ± 0.82 mmol/L and 10.06% ± 4.3%, respectively for the non-athletes. The correlation between basal lactate and body fat percentage was analysed and there was a significant positive correlation found for the athletes group with $p = 0.005$. This relationship was also validated in the non-athletes group with $p = 0.026$.
Conclusion: Given the previous studies done on lactate production influenced by diabetes mellitus and the correlation now found between basal lactate and adiposity, monitoring lactate production can provide fast and accurate diagnostics related to carbohydrate metabolism *in vivo*. Further study is required to provide the optimal and diagnostic ranges for basal lactate.

02P−2

Metabolic Profile of Adaptations in Jamaican Athletes

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Objectives: To differentiate sprint performance in young Jamaican sprinters by investigating the relationship between serum levels of blood lactate ($bLac^-$), creatine kinase (CK) and lactate dehydrogenase (LDH), and physical performance.
Methods: Subjects (n = 30) were divided into two groups: elite (EG; n = 15) and sub-elite (SEG; n = 15) sprinters. Blood lactate at zero minutes and at three, eight and 15 minutes following a 350 m sprint were measured using a portable lactate meter (~ 0.7 µl) under passive recovery mode. Subjects provided blood at zero minutes and 30 minutes post 350 m run *via* venipuncture for CK and LDH determination.
Results: Mean age was 17.4 (± 1.40) and 17 (± 1.40) years for the EG and SEG, respectively. Running time was negatively correlated with peak $bLac^-$ for the EG ($r = -0.8$, $p < 0.05$) and SEG ($r = -0.69$, $p < 0.05$). Mean sprint velocity and peak $bLac^-$ were positively correlated for the EG ($r = 0.8$, $p < 0.05$) and SEG ($r = 0.67$, $p < 0.05$). Recovery as measured by the change in lactate between eight and 15 minutes showed a significant difference ($p < 0.05$) between the EG (1.4 mmol/L ± 4.8) and SEG (0.3 mmol/L ± 4.1). Post-exercise CK and mean sprint velocity were positively correlated for the SEG ($r = 0.6$, $p < 0.05$) but not so for the EG ($r = -0.207$, $p > 0.05$). Post-exercise LDH showed no correlation with mean sprint velocity for the EG or SEG.
Conclusion: At the youth level, metabolic profiling may distinguish elite and average athletes.

02P−3

The Abolition of User Fees in the Jamaican Public Health System: Impact on Users' Access to Healthcare Services

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Objective: To establish whether there are barriers to accessing the healthcare services by users since the abolition of user fees in the Jamaican public health system.
Methods: The study used a multi-layered mixed methods evaluation design. A quantitative approach was utilized to determine users' access to healthcare services. A non-probability systematic sampling approach was utilized to survey 200 people who used the public health system between March and July 2010. The sample was from the four Regional Health Authorities and included users of health centres and hospitals.
Result: People from the lower socio-economic group used the Jamaican public health system more since the abolition of user fees. Users' mean age was 47 years and care was required mainly for hypertension (50%) and diabetes mellitus (30.5%). Almost 75% of users reported their health was better than two years ago. Users generally rated access to healthcare as being easier and the quality of care received as good. A two-way analysis of variance (ANOVA) across the regions and facilities on access and quality care showed no significant variability. Key problems encountered by the users are long waiting time (30.5%), drugs unavailability (30%) and negative attitude of some health personnel (8%).
Conclusion: The abolition of user fees in the Jamaican public health system has improved access to healthcare services, nonetheless it may be at the expense of adequate resources. Health outcome benefits of earlier access may not be achieved if the necessary infrastructure and resources are not in place.

02P−4

Metabolic and Hormonal Evaluation of Patients with Risk Factors of Type 2 Diabetes Mellitus

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Objective: To evaluate the relationship between hormonal factors as the main regulators of glycaemic control and lipid metabolism in patients with risk factors for developing Type 2 diabetes mellitus.
Method: This was a cross-sectional and prospective study done over six months. The clinical histories of patients with Type 2 diabetes mellitus in the diabetes clinic were reviewed and a sample of 120 subjects with risk factors related to genetic predisposition (first degree relatives) was selected and the biochemical markers were measured according to standard procedures.
Results: Fasting blood glucose, high-density lipoprotein cholesterol (HDL-C), triglycerides and creatinine were within the referred range for the healthy population. Insulin concentration and C peptide were also within normal range. The FT3, FT4 and thyroid stimulating hormone (TSH) were normal in 29 subjects. There were 91 subjects with changes in one or more hormones. Hypothyroidism was found in three cases while one was diagnosed with hyperthyroidism.
Conclusion: Autoimmune insults, as represented by thyroid diseases, are present in a population of patients with Type 2 diabetes mellitus.

Notes