

Selected Abstracts of Articles Published Elsewhere by Authors in Kuwait

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Two-trocar Laparoscopic Varicocelectomy: Cost-reduction Surgical Technique

Al-Hunayan A, Abdulhalim H, Kehinde EO, El-Barky E, Al-Awadi K, Al-Ateeqi A
Division of Urology, Department of Surgery, Mubarak Teaching Hospital, Kuwait University Faculty of Medicine, Safat, Kuwait. E-mail: alhunayan@hsc.edu.kw

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Objectives: To describe the technique of two-trocar laparoscopic varicocelectomy and compare it with the standard three-trocar laparoscopic technique in terms of effectiveness, morbidity, and cosmesis.

Methods: Two matched groups of patients with left varicocele were recruited. Each group included 30 patients. One group underwent three-trocar and the other two-trocar laparoscopic varicocelectomy. The results of the two approaches were compared.

Results: No significant differences were found in terms of mean hospital stay or morbidity between the two-trocar and three-trocar techniques. A significant difference was found in the operative time and proportion of patients needing postoperative parenteral narcotic analgesia in favor of the two-trocar technique. In both approaches, the previously infertile patients had a significant improvement in sperm count and motility ($P < 0.05$). Cosmetically, the trocar wound scars were aesthetically superior using the two-trocar technique.

Conclusions: No significant difference was found between two-trocar and three-trocar laparoscopic varicocelectomy in terms of effectiveness and morbidity. The cost of an extra 5-mm disposable trocar in the three-trocar technique and the improved cosmesis after the two-trocar technique have made us prefer the latter technique.

Prostate Cancer Risk: The Significance of Differences in Age Related Changes in Serum Conjugated and Unconjugated Steroid Hormone Concentrations Between Arab and Caucasian Men

Kehinde EO, Akanji AO, Memon A, Bashir AA, Daar AS, Al-Awadi KA, Fatinikun T
Faculty of Medicine, Department of Surgery, Kuwait University, P.O. Box 24923, 13110, Safat, Kuwait.
E-mail: ekehinde@hsc.edu.kw

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Introduction: Factors responsible for the low incidence of clinical prostate cancer (3-8/100,000 men/year) in the Arab population remain unclear, but may be related to changes in steroid hormone metabolism. We compared the levels of serum conjugated and unconjugated steroids between Arab and Caucasian populations, to determine if these can provide a rational explanation for differences in incidence of prostate cancer between the two populations.

Patients/Method: Venous blood samples were obtained from 329 unselected apparently healthy indigenous Arab men (Kuwaitis and Omanis) aged 15-80 years. Samples were also obtained from similar Arab men with newly diagnosed prostate cancer or benign prostatic hyperplasia (BPH). The

samples were taken between 8:00 am and 12:00 noon. Serum levels of total testosterone (TT), sex hormone binding globulin (SHBG), free androgen index (FAI); adrenal C(19)-steroids, dehydroepiandrosterone sulphate (DHEAS) and androstenedione (ADT) were determined using Immulite kits (Diagnostic Systems Laboratories Inc, Webster Texas, USA). The results obtained in Arab men were compared with those reported for similarly aged Chinese, German and White USA men. Results: In all four ethnic groups, median TT and FAI declined with age, while SHBG increased with age. However, the mean TT and SHBG was significantly lower ($p < 0.01$) and the FAI significantly higher in Arab men ($p < 0.01$) compared to German men only in 21-30 years age group. In the other age groups the levels of TT and SHBG were higher in the Germans but the differences were not statistically significant. In all the racial groups serum levels of DHEAS and ADT reached a peak by about 20 years of life, and then declined progressively. The mean DHEAS in American Caucasians aged 20-29 years was 11.4 $\mu\text{mol/l}$ compared to 6.22 $\mu\text{mol/l}$ in the Arabs ($p < 0.001$). The mean DHEAS in USA Caucasians aged 70-79 years was 2.5 $\mu\text{mol/l}$ compared to 1.8 $\mu\text{mol/l}$ ($p < 0.03$) in the Arabs. There was no significant difference in mean serum levels of DHEAS between German and USA men. Similarly, there was no significant difference in the level of the hormones between Arab and Chinese men. Arab men with newly diagnosed prostate cancer had high serum TT, SHBG and DHEAS compared to those without the disease. Conclusions: The mean TT and SHBG was significantly lower in Arab men compared to Caucasian men especially in early adulthood. Caucasians have significantly higher serum levels of the precursor androgens DHEAS and ADT especially in early adulthood compared to Arab men. These observations of low circulating androgens and their adrenal precursors in Arab men may partially account for the decreased risk for prostate cancer among Arab men.

Relationship between Serum Prostate Specific Antigen and the Pattern of Inflammation in Both Benign and Malignant Prostatic Disease in Middle Eastern Men

Anim JT, Kehinde EO, Prasad A, Sheikh M, Mojiminiyi OA, Ali Y, Al-Awadi K
Department of Pathology, Faculty of Medicine, Kuwait University and Mubarak Al-Kabeer Hospital, Kuwait.

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To determine the effect of prostatitis on serum prostate specific antigen in the diagnosis of prostate cancer in Middle Eastern men, H&E-stained sections of all consecutive prostate specimens were reviewed for diagnosis (malignant or benign) and pattern of inflammation. Inflammation was categorized into acute, active chronic and chronic inactive and graded semi-quantitatively according to previously published criteria. Results were correlated with serum PSA obtained from patients' records. Of 513 prostate specimens reviewed; 435 (84.8%) were benign and 78 (15.2%) were malignant. Chronic inactive prostatitis was present in 259 (204 benign, 55 malignant) and active chronic prostatitis in 221 (204 benign, 17 malignant). Acute prostatitis alone was not observed and prostatitis was absent in 33 (27 benign, 6 malignant). There was no significant difference in the prevalence of inactive chronic prostatitis between benign and malignant specimens ($p < 0.071$), but active chronic prostatitis was more prevalent in benign specimens ($p < 0.001$). Increasing serum PSA was observed for increasing grades of both inactive and active chronic prostatitis in both benign and malignant disease. Prostate cancer showed higher serum PSA levels than benign, at different cut-off points (4 ng/ml = $p < 0.0001$; 8 ng/ml = $p < 0.0001$; 12 ng/ml = $p < 0.0001$). However, significant numbers of patients with benign prostate biopsies presented with PSA above 12 ng/ml (82/260 = 32%). We conclude that active chronic prostatitis is common in Middle Eastern men with benign prostatic disease and a significant number of these present with very high PSA levels, some over 300 ng/ml .

Determination of the Prevalence of Lymphatic Filariasis among Migrant Workers in Kuwait by Detecting Circulating Filarial Antigen

Iqbal J, Sher A

Department of Microbiology, Faculty of Medicine, Kuwait University, PO Box 24923, Safat 13110, Kuwait.
E-mail: iqbal@hsc.edu.kw

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The main objective of this study was to determine the prevalence of filarial infection among migrant workers in Kuwait. The study was conducted from April 2000 to November 2003. A total of 1050 migrant workers (>90 % from the Indian subcontinent) from filarial endemic countries and 260 individuals residing in Kuwait as controls (50 healthy Kuwaiti blood donors, 50 microfilaria-negative individuals from endemic areas and 160 patients with other parasitic infections) were screened for filarial infection. All specimens were tested for microfilaraemia by microscopy of nucleopore-filtered blood (NFB) and detection of circulating filarial antigen (CFA) by an immunochromatographic test (ICT) and the TropBio assay. The overall prevalence of filarial antigenaemia was 18.3 % (192 individuals) using the ICT and 20.3 % (213 individuals) using the TropBio assay. Thirty-two cases (3 %) of *Wuchereria bancrofti* were detected by microscopy and the mean microfilaria count in these cases was 816 microfilariae ml⁻¹. CFA was detected only in two of the 260 control subjects. Statistical analysis to calculate the sensitivity, specificity and prevalence of infection was carried out using maximum-likelihood statistical methods. The overall sensitivity and specificity of the ICT and TropBio assay to detect CFA were comparable. Compared with NFB microscopy, the sensitivity of the ICT was 93.8 % and specificity ranged from 84 to 100 %. The sensitivity and specificity of the TropBio assay were 90.1 and 100 %, respectively. However, the ICT failed to detect CFA in two cases with a microfilarial load of <20 microfilariae ml⁻¹. In conclusion, the prevalence of filarial infection among the migrant workers in Kuwait was 18.3 % as determined by the ICT.

Molecular and Clinical Evaluation of Primary Congenital Glaucoma in Kuwait

Alfadhli S, Behbehani A, Elshafey A, Abdelmoaty S, Al-Awadi S

Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences, Kuwait University, PO Box 31470
Sulaibekhat, Kuwait. E-mail: s.alfadhli@hsc.edu.kw

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PURPOSE: To report the spectrum of the CYP1B1 mutation in Kuwaiti patients with primary congenital glaucoma (PCG). **DESIGN:** Clinical diagnosis of PCG and laboratory based experimental study. **METHODS:** Polymerase chain reaction-restriction polymorphism length fragment (PCR-RPLF) and direct sequencing of exon 2 and the coding region of exon 3 of CYP1B1 gene were the methods used for screening 17 PCG patients, their families, and 105 health individuals from the same ethnicity. **RESULTS:** Four different mutations were detected in CYP1B1 in 70.6% of the screened patients. The most common one (47%) was homozygote Gly61Glu mutation, previously described in Saudi Arabia, Turkey, and Morocco; all patients were products of consanguineous marriages. The second common mutation was a novel missense (Ala388Thr) mutation found in three patients (17.6%) as compound heterozygote with Arg368His in one patient, and with Gly61Glu in another one while the second mutation in third patient was not detected in the CYP1B1 gene. One patient (5.8%) was homozygote for Cyt280X mutation previously reported in only one Japanese family. In addition to these mutations, a novel Val422Gly polymorphic site was found in three of the PCG patients and in 18 of the 210 tested chromosomes of healthy volunteers. **CONCLUSIONS:** The CYP1B1 mutation spectrum of Kuwaiti PCG patients is similar to that detected in the neighboring countries. No clear genotype-phenotype correlation detected in patients showed different types of CYP1B1 mutation.

Body Mass Index of Kuwaiti Children Aged 3-9 Years: Reference Percentiles and Curves

Al-Isa AN, Thalib L

Department of Community Medicine and Behavioural Sciences, Faculty of Medicine, University of Kuwait, P.O. Box 24923, Safat, Code 13110, Kuwait. E-mail: alisa@hsc.edu.kw

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AIM: The suitability of using the standards for body mass index (BMI), produced in the U.S. by the National Center for Health Statistics, for assessing overweight and obesity among children in Kuwait and other Arabian Gulf countries has not been examined. These standards were obtained from better-nourished and genetically different populations to those found in Kuwait and in other Gulf region countries. The purpose of this study was to develop BMI reference percentiles and curves appropriate for children aged 3-9 in these countries. **METHOD:** Attempts were made to include all healthy Kuwaiti kindergarten and elementary education children in this study. The total sample was 113,013, comprising 55,053 males and 57,960 females. The children were measured for weight and height from which the BMI was calculated. Appropriate polynomial regression smoothing techniques were used to obtain the best-fitting percentile curves. **RESULTS:** At percentiles < or =25th, the BMI of boys exceeded that of girls. At the 50th percentile, boys' BMI was mostly higher than or equal to that of the girls except at age nine where it was lower. At the 75th percentile, the BMI of both genders was similar, with exceptions at age six and nine years. At the 85th and 95th percentiles, girls' BMI was consistently higher than males. At the lowest percentile, the BMI of US children was higher than Kuwaiti, Saudi (starting at six) and Iranian children. The BMI of Kuwaiti children at higher percentiles was higher than that of Saudi, Iranian (except at age < four years) and US children. **CONCLUSION:** BMI curves for Kuwaiti children follow almost the same pattern as their US counterparts but with noticeable variations especially at the lower and higher percentiles. This study may reflect that western standards may not be directly applicable to assess the level of BMI in Kuwait and possibly in the neighbouring Gulf countries, since they may overestimate the levels of overweight, obesity and underweight.

Incidence of Acute Myocardial Infarction during Islamic Holiday Seasons

Zubaid M, Thalib L, Suresh CG.

Department of Medicine, Faculty of Medicine, Kuwait University, PO Box 24923, 13110, Safat, Kuwait.
E-mail: zubaid@hsc.edu.kw

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Some weather and holiday seasons are associated with increased incidence of acute myocardial infarction (AMI). We studied the influence of one such season, Islamic holiday season of "Eid Al-Fitr", on the incidence of AMI in a Muslim country. This was carried out by examining the admissions to the coronary care unit of a large hospital over six consecutive years (from 1997 to 2003), encompassing six consecutive holiday seasons in Kuwait. We compared the admission rates during three time intervals in each of those 6 years; the Eid holiday season, the 2 months before and the 2 months after. A total of 964 AMI admissions occurred, with a mean age of 55 years. When the admission rates were compared, the Islamic holiday seasons were associated with a significant increase in AMI admission rate (45 cases vs. 31 cases, $p < 0.01$). This increase occurred mainly on the second day of the 4-day holiday season. This finding was confirmed using Locally Weighted Smooth Regression (LOESS) regression models with different smoothing levels. Our finding might have potential implications for preventive health campaigns in Muslim countries.