

## Selected Abstracts of Articles Published Elsewhere by Authors in Kuwait

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### High Serum Prostate-Specific Antigen Levels in the Absence of Prostate Cancer in Middle-Eastern Men: The Clinician's Dilemma

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**Objective:** To investigate the common causes of total serum prostate-specific antigen (PSA) values of > 10 ng/mL in an Arab population, as in the USA and Europe the risk of prostate cancer is considered high in men with such PSA levels.

**Patients And Methods:** Serum total PSA was measured in men presenting to our hospital as part of the investigation for prostate cancer screening and/or in elderly men with prostatism. Men with a serum PSA level of > 10 ng/mL were further investigated by transrectal ultrasonography (TRUS) of the prostate and biopsy of suspicious lesions for histological diagnosis. In addition, the percentage of free PSA, PSA velocity and PSA density were determined. All the patients included in this study were men of Arab origin residing in Kuwait.

**Results:** In all, 1700 men (mean age 55.6 years, range 35-94) were assessed; of these, 161 had a serum PSA of > 10 ng/mL, attributable to benign prostatic hyperplasia (BPH) in 110 (68%), BPH with histological features of prostatitis in 33 (21%) and prostate cancer in 18 (11%). TRUS of the prostate in 143 of the 161 men with either BPH or BPH with prostatitis showed varying grades of intraprostatic calcifications in 22 (15%). Both PSA density and percentage free PSA did not contribute to determining the causes of total PSA levels of > 10 ng/mL. There was a progressive decline in PSA in all patients with BPH and prostatitis, except one who at re-biopsy had prostate cancer (T1N0M0, G1).

**Conclusion:** Total PSA values of > 10 ng/mL in Arab men may be a result of BPH, BPH with prostatitis or prostate cancer, in that order. A gradual decline in total PSA (decreased PSA velocity) with time to < 4 ng/mL often confirms the diagnosis of BPH with prostatitis. The percentage of free PSA and PSA density may not be helpful in diagnosing prostate cancer with certainty in these patients. Compared with Caucasians in the USA and Europe, BPH and BPH with prostatitis appear to be more frequent causes of serum PSA levels of > 10 ng/mL in Arab men.

### Correlation Between CMV Genotypes, Multiple Infections with Herpesviruses (HHV-6, 7) and Development of CMV Disease in Kidney Recipients in Kuwait

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The possible correlation between cytomegalovirus, human herpesvirus types 6, 7 and cytomegalovirus-related clinical symptoms was studied in kidney transplant patients in Kuwait.

Cytomegalovirus infection was diagnosed using the pp65 antigenemia assay. DNA of cytomegalovirus was detected by nested polymerase chain reaction (nested-PCR). PCR was also used to amplify the genes coding for structural proteins of human herpesvirus-6 (240 bp) and human herpesvirus-7 (186 bp). Glycoprotein B genotypes of cytomegalovirus were determined by restriction fragment length polymorphism. The average number of cells positive for cytomegalovirus pp65 antigen showed a steady increase with the severity of the cytomegalovirus-related symptoms. Furthermore, cytomegalovirus pp65 antigen positivity was significantly more frequent among recipients of cadaver kidney (45.5%) than among those who received live related kidneys (22.6%). Cytomegalovirus gB genotype 1 was detected more frequently ( $P < 0.036$ ) in recipients with live related donor kidney (38%) than in patients of cadaver kidney (13%). The genome of human herpesvirus-6 was detected at the same rate in patients with or without cytomegalovirus-related symptoms. However, the genome of human herpesvirus-7 was detected significantly more frequently ( $P < 0.0001$ ) in asymptomatic patients (41.7%) than in recipients with symptomatic cytomegalovirus infection (17%). We conclude that cytomegalovirus gB genotypes are not associated with the outcome of a cytomegalovirus infection in kidney transplant patients, that human herpesvirus-6 does not play a role in cytomegalovirus pathogenesis and that the role of human herpesvirus-7 in cytomegalovirus-related morbidity in kidney recipients remains unclear.

## **Extent and Severity of Atherosclerotic Vascular Disease in Patients Undergoing Coronary Angiography--The Kuwait Vascular Study**

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Only a few angiographic studies have correlated the presence and severity of coronary artery disease with atherosclerosis in other arteries. The presence of disease in more than 1 area clearly has important implications on management. One hundred and seventy eight patients had angiographic evaluation of their peripheral arteries and abdominal aorta after routine diagnostic coronary angiography. The extent and severity of vascular disease was correlated with those of coronary artery disease. Of the 178 patients, 73.6% were men (mean age  $\pm$  sd was  $52.93 \pm 10.12$  years). Hypercholesterolemia (59%), systemic hypertension (56.7%) and diabetes mellitus (50.6%) were the major risk factors. Triple-vessel coronary artery disease was present in 48.9%, and 13.5% had normal coronaries. A new atherosclerotic vascular disease score, which reflects the presence and severity of atherosclerotic vascular disease elsewhere, was seen to correlate significantly with the extent of coronary artery disease. Of particular interest was the involvement of the first part of the vertebral artery in 41.6% of patients. The combined involvement of the abdominal aorta, renal artery, and iliac artery segments (together referred to as the lower body segment) was seen almost exclusively in those with 2- or 3-vessel coronary artery disease. Also there was a direct correlation between the extent of coronary artery disease and the score in the lower body segment as opposed to the upper body segment (subclavian, vertebral, and internal mammary arteries). The presence of atherosclerotic vascular disease correlated with the severity of coronary artery disease, particularly in respect to disease in the lower body segment. Thus early detection of such disease in the iliac or femoral arteries has a potential for early diagnosis of significant coronary artery disease.

## Instructional Skills of Surgical Tutors

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**Aim of Study:** This study was aimed at evaluating the pattern of instructional skills of surgical tutors in a university hospital and the effect of feedback on this pattern.

**Method:** Students who followed three clinical rotations at the Department of Surgery, Mubarak Al-Kabeer Teaching Hospital, Kuwait, responded anonymously to a structured questionnaire on the instructional skills of their tutors immediately after the rotation was completed. The questionnaire included six statements related to teacher-centred instructional skills and six statements related to student-centred instructional skills. The students indicated their perception on a five-point rating scale (very poor, poor, fair, good and very good). A summary of students' opinions was made available to the teachers soon after each rotation.

**Results:** The percentage of good/very good categories was significantly higher in the teacher-centred skills compared with the student-centred skills (median (range), 87.05% (85.9-91.7) compared with 79.6% (76.6-80.6), ( $p = 0.004$ , Mann Whitney U test). This difference was significant in the first two rotations ( $p < 0.005$ ) but not in the third rotation ( $p = 0.59$ ).

**Conclusions:** This study shows that behaviours of teachers which dealt directly with the learner's role in learning received lower emphasis than the teacher-centred activities and that feedback may modify this behaviour.

## Characterization of rpoB Mutations in Rifampin-Resistant Clinical Mycobacterium Tuberculosis Isolates from Kuwait and Dubai

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Mutations conferring resistance to rifampin in rifampin-resistant clinical *Mycobacterium tuberculosis* isolates occur mostly in the 81 bp rifampin-resistance-determining region (RRDR) of the rpoB gene. In this study, 29 rifampin-resistant and 12 -susceptible clinical *M. tuberculosis* isolates were tested for characterization of mutations in the rpoB gene by line probe (INNO-LiPA Rif. TB) assay and the results were confirmed and extended by DNA sequencing of the PCR amplified target DNA. The line probe assay identified all 12 susceptible strains as rifampin-sensitive and the DNA sequence of RRDR in the amplified rpoB gene from two isolates matched perfectly with the wild-type sequence. The line probe assay identified 28 resistant isolates as rifampin-resistant with specific detection of mutation in 22 isolates including one isolate that exhibited hetro-resistance containing both the wild-type pattern as well as a specific mutation within RRDR while one of the rifampin-resistant strain was identified as rifampin-susceptible. DNA sequencing confirmed these results and, in addition, led to the specific detection of mutations in 5 rifampin-resistant isolates in which specific base changes within RRDR could not be determined by the line probe assay. These analyses identified 8 different mutations within RRDR of the rpoB gene including one novel mutation (S522W) that has not been reported so far. The genotyping performed on the isolates carrying similar mutations showed that majority of these isolates were unique as they exhibited varying DNA banding patterns. Correlating the ethnic origin of the infected TB patients with the occurrence of specific mutations at three main codon positions (516, 526 and 531) in the rpoB gene showed that most patients (11 of 15) from South Asian region contained mutations at codon 526 while majority of isolates from patients (6 of 11) of Middle Eastern origin contained mutations at codon 531.

## Comparison of Two Commercial Assays with Expert Microscopy for Confirmation of Symptomatically Diagnosed Malaria

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Conventional light microscopy has been the established method for malaria diagnosis. However, recently several nonmicroscopic rapid diagnostic tests have been developed for situations in which reliable microscopy may not be available. This study was conducted to evaluate the diagnostic performance of a recently introduced ICT Malaria Pf/Pv test. This assay detects Plasmodium falciparum histidine-rich protein 2 antigen (PfHRP-2) for P. falciparum diagnosis and pan-malarial antigen for P. vivax diagnosis. In this study we compared the performance of ICT Malaria Pf/Pv with microscopy of Giemsa-stained blood films and with an OptiMALtest that detects Plasmodium lactate dehydrogenase (pLDH) antigen. A total of 750 clinically suspected malaria patients were examined at local health centers in Kuwait. Both the antigen tests had a high degree of specificity (>98%) for detection of malaria infection. However, they were less sensitive than microscopy. Compared with microscopy the ICT Malaria PF/pf test failed to detect malaria infection in 93 (34%) of 271 malaria patients (11% of patients with P. falciparum and 37% of patients with P. vivax) and the OptiMALtest failed to detect malaria infection in 41 (15%) of 271 malaria patients (7% of patients with P. falciparum and 13% of patients with P. vivax). The sensitivities of the ICT Malaria Pf/Pv and OptiMAL tests for detection of P. falciparum infection were 81 and 87%, and those for detecting P. vivax were 58 to 79%, respectively. The sensitivity of the ICT Malaria Pf/Pv and OptiMAL tests decreased significantly to 23 and 44%, respectively, at parasite densities of <500/ micro l. Both of the tests also produced a number of false-positive results. Overall, the performance of the OptiMALtest was better than that of the ICT Malaria Pf/Pv test. However, our results raise particular concern over the sensitivity of the ICT Malaria Pf/Pv test for detection of P. vivax infection. Further developments appear necessary to improve the performance of the ICT Malaria Pf/Pv test.

## 155 Vascular Injuries: A Retrospective Study in Kuwait, 1992-2000

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**Objectives:** To audit the management of vascular trauma in Kuwait, 1992-2000.

**Design:** Retrospective open study.

**Setting:** Vascular surgery unit, teaching hospital, Kuwait.

**Subjects:** 155 patients with vascular injuries, most of which (n = 118) involved the extremities. 21 had neck injuries, 10 abdominal, and 6 chest.

**Intervention:** Revascularisation usually using the long saphenous vein in addition to direct repair or end-to-end anastomosis.

**Main Outcome:** Morbidity (amputation) and mortality.

**Results:** Four lower limb grafts failed, two of which (2/69, 3%) required amputation. Overall, four patients died (3%), one of pulmonary embolism and 3 of severe injuries to major abdominal vessels. 3/10 patients with abdominal vascular trauma died. Mean (SD) follow up period was 4.4 (2) years.

**Conclusions:** Civilian violence has increased in Kuwait. Vascular trauma to abdominal vessels is associated with high mortality. Autogenous saphenous vein forms an excellent conduit for revascularisation.