

## Abstracts of Articles Published Elsewhere by Authors in Kuwait

Kuwait Medical Journal 2001, 33 (4): 354-360

### **A Study of Dengue Imported to Kuwait During 1997-1999**

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This study was carried out on sera from 210 patients in Kuwait in 1997-1999. All of the patients were suffering from febrile illness and had recently visited dengue- (DEN) endemic areas. The sera were screened for DEN virus by inoculation into cultures of the *Aedes albopictus* cell clone C6/36 (virus isolation) and by IgM capture ELISA (detection of DEN virus-specific IgM antibodies). In the cell cultures, DEN virus could not be isolated from any of the patients' sera. However, sera from 19 patients were positive for DEN virus-specific IgM antibodies. All these 19 sera were tested for the presence of DEN virus-specific RNA by reverse transcription-PCR (RT-PCR) using DEN virus type-specific primers in a semi-nested PCR. The results showed that two of the 19 patients were infected with DEN virus type 2. This report of 19 patients with serological evidence of DEN infection indicates that imported DEN is a real threat to Kuwait, a country non-endemic for DEN but with a large portion of the population vacationing in DEN-hyperendemic areas during the peak DEN season and then returning to Kuwait.

### **Invasive Amebiasis: Challenges in Diagnosis in a Non-Endemic Country (Kuwait)**

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**Am J Trop Med Hyg 2001; 65:341-345**

Invasive zymodemes of the enteric protozoan *Entamoeba histolytica* infect the large intestine and cause extra-intestinal lesions such as amebic liver abscess (ALA). The clinical manifestations of ALA are protean, particularly in patients presenting in a non-endemic, desert country such as Kuwait, and diagnosis becomes problematic. In this study, we present cases of ALA to illustrate the clinical and diagnostic challenges.

For serodiagnosis of ALA, we compared the sensitivity and specificity of the indirect hemagglutination assay (IHA) with the ImmunoTab assay and an enzyme-linked immunosorbent assay (ELISA) for this geographic region. We tested sera of 110 patients with ALA, 1,224 patients suspected of having invasive amebic infection, and 50

Europeans with no travel history to an amebic-endemic area. The IHA was simple, rapid, easy to perform, and reliable (sensitivity = 99%, specificity > 95%). The performance of the IHA in detecting ALA in suspected cases was significantly better than that of the ELISA and the ImmunoTab test. Compared with the IHA, both the ELISA and ImmunoTab assay detected relatively higher numbers of false-positive cases (4.7% and 3.6%, respectively). With the availability of ultrasound and computed tomography scans, the serology correlates excellently with the clinical presentation. In

chronic cases where fibrosis may be present around the abscess, the IHA has limitations, as in the follow-up of treated patients. Pitfalls in diagnosis are highlighted by discussing the differential diagnosis of ALA from bacterial hepatic abscesses and infected hydatid cysts. Most importantly, the IHA in such cases was invariably at a titer that is considered not significant.

## Variations in <sup>7</sup>Be Concentrations in the Atmosphere of Kuwait During the Period 1994 to 1998

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**Appl Radiat Isot 2001; 55(3):413-417**

The Beryllium-7 (<sup>7</sup>Be) concentrations in the atmosphere of Kuwait, as found by gamma-ray measurements for 243 air filters collected over a five-year period, produced variable values ranging from 0.2 to 14.9 mBq/m<sup>3</sup> with a behavior pattern which has oscillatory characteristics, with increased activities occurring in the summer months of each year. The annual levels of occurrence of <sup>7</sup>Be were found to be correlate with the cyclic pattern resulting from the eleven-year temporal variations associated with the solar activity.

## The Spread of a Mupirocin-Resistant/ Methicillin-Resistant Staphylococcus Aureus Clone in Kuwait Hospitals

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**Acta Trop 2001 22; 80(2):155-161**

High-level mupirocin- and methicillin-resistant Staphylococcus aureus (MRSA) isolated from five hospitals in Kuwait were studied by pulsed-field gel electrophoresis (PFGE) to determine their relatedness to one another and to high-level mupirocin-resistant MRSA isolated previously in a Burns Unit. The genetic location of mupirocin resistance determinant was also determined. All of the isolates were resistant to gentamicin, kanamycin, streptomycin, tetracycline and cadmium, and contained plasmids of 38, 26 and 2.8 kb. Two isolates contained additional 4.4-kb plasmids. Transfer experiments demonstrated that the 38-kb plasmid encoded high-level mupirocin resistance and the 4.4-kb plasmid encoded chloramphenicol resistance. PFGE typing of representative isolates from the five hospitals demonstrated that the majority of them had identical or closely related pulsed-field patterns suggesting that they had a common origin.

However, they differed from high-level mupirocin-resistant MRSA isolated previously in the Burns Unit in their resistance and pulsed-field patterns. Whereas the majority of the previous isolates were susceptible to ciprofloxacin and resistant to trimethoprim and chloramphenicol, the majority of the current isolates were susceptible to trimethoprim and chloramphenicol, and resistant to ciprofloxacin. Only one of the current isolates had identical pulsed-field pattern to the majority of

isolates obtained previously in the Burns Unit. The results suggested that a previously dominant clone of high-level mupirocin-resistant MRSA has been replaced in the Burns Unit by a new clone, which also spread in four other hospitals.

## Dental Caries Experience of Disabled Children and Young Adults in Kuwait

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**Community Dent Health 2001; 18(3):181-186**

**Objectives:** The aim of the study was to assess the caries experience of disabled children and young adults in Kuwait, to set baseline data, and to determine their treatment need.

**Methods:** Dental caries was scored by surface in accordance with WHO criteria. The study population comprised 832 disabled children and young adults (3-29 years; mean age 12.1 years) who were visually impaired, hearing impaired, had physical handicaps or developmental disorders, attending special needs schools.

**Results:** The proportion of caries free subjects in the primary dentition (3-12-year-old children) was 11.2%. The mean dmft was 5.4, and dmfs 15.2, being highest in the Down's syndrome and lowest in the blind. The proportion of caries-free subjects in permanent dentition, over 5 years of age was 24.2%. The smallest percentage of caries-free subjects was found in the hearing impaired (16.4%) and highest percentage in the blind (35.5%). The mean DMFT was 4.5 and the DMFS 8.7, being highest in the Down's syndrome and lowest in the blind. Prevalence of untreated decay was highest in hearing impaired (86%). The caries experience of first permanent molars represented the largest proportion of the DMFT score (53.6%). In the permanent dentition increasing age, impaired hearing, and poor oral hygiene were significantly associated with caries risk.

**Conclusion:** Caries experience among this disabled population was clearly higher than among the respective age groups in a previous national population survey. The study confirmed the need for strengthening organised preventive and restorative care for this population in Kuwait.

## Initiation Factors for Substance Abuse

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**J Adv Nurs 2001; 34(1):78-85**

**Aim:** The study reported in this paper investigated factors that led to the initial use and abuse of drugs in 237 addicts receiving treatment at the Psychological Medicine Hospital, Kuwait.

**Method:** A self-administered questionnaire was designed to elicit information regarding socio-demographic data and initiation patterns. Questions about initiation patterns were related to personal, familial and social variables in addition to accessibility to drugs.

**Results:** Almost all the sample were male (99.2%) and 42.6% were married. The findings were grouped into (1) factors associated with drug abuse and (2) initial/ significant factors for drug abuse. One way ANOVA showed that there was a significant statistical association between current

age and source of drug. Also, there was a significant statistical association between the age of the addict when first started on drugs, and the source of drugs. Multiple regression analysis was also computed for initial significant factors. One factor 'excessive unsupervised free time' was statistically significant.

**Recommendations:** Strategies for primary, secondary and tertiary interventions in addition to recommendation for further studies are suggested.

## A Randomized Study of the Safety and Efficacy of Reused Angioplasty Balloon Catheters

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**Indian Heart J 2001; 53(2):167-171**

**Background:** To lower costs, many centers around the world utilize previously used, resterilized balloon catheters to perform coronary angioplasty. There are no controlled trials regarding their safety and efficacy.

**Methods and Results:** We performed the first randomized, double-blind, controlled, single-center clinical trial comparing the safety (clinical success) and efficacy (angiographic success) of reused versus new coronary angioplasty balloon catheters. A total of 377 procedures were included, 178 in the reused catheter arm and 199 in the new catheter arm. There were no significant differences in clinical or lesion characteristics among the two arms. The incidence of first balloon failure in the reused catheter arm was similar to that of the new catheter arm (12 cases [7%] v. 10 cases [5%], respectively). The angiographic success rate was also similar—176 cases (98.9%) in the reused catheter arm and 196 cases (98.5%) in the new catheter arm. The number of balloon catheters used per lesion, amount of contrast, and procedural and fluoroscopy time were similar in the two arms. At 30 days, the incidence of major adverse cardiac events was similar in both arms, 8 cases (4.5%) in the reused catheter arm and 10 cases (5%) in the new catheter arm. The incidence of fever was also similar.

**Conclusions:** When performing coronary angioplasty, reused catheters are as effective (similar angiographic success) and safe (similar clinical success) as new catheters.

## Thrombolytic Therapy in Acute Myocardial Infarction: Practice Pattern at an Arab Middle Eastern Centre

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**Acta Cardiol 2001; 56(2):115-119**

**Objectives:** We studied the use of thrombolytic treatment at a major hospital in Kuwait. There were three aims to our study. First, to document the rates of use and shortfall of thrombolytic therapy. Secondly, to identify the reasons for the shortfall. Thirdly, to study the influence of age and gender on the shortfall.

**Methods and Results :** We retrospectively examined the use of thrombolytic treatment in 983 consecutive patients with the diagnosis of acute myocardial infarction (AMI) during a three-year period, from June 1994 to May 1997. The term "shortfall" refers to the number of patients who were eligible for thrombolytic treatment but did not receive it. Patients were relatively young (59% were

< 55 years old). There was a high prevalence of diabetes (39%). We identified 669 patients who were eligible to receive thrombolytic therapy (68% of the total AMI population). Of the eligible population, 625 patients (93.4%) received thrombolytic therapy while 44 patients did not (a shortfall of 6.6% among the eligible population). The reasons for the shortfall were: unknown reasons, retinopathy, and others. The shortfall was higher in women than in men (13% vs. 6%, respectively;  $p=0.02$ ). The shortfall was higher in older patients than in younger patients (18% vs. 5%, respectively;  $p=0.0002$ ).

**Conclusions:** Our thrombolysis rate is one of the highest, and the shortfall is one of the lowest reported rates in the literature. Many eligible women and older patients are not receiving thrombolytic therapy. Changes to thrombolytic therapy use should be implemented to avoid unnecessary shortfall and potential gender and age bias.

## **Effect of Repeated Doses of Dexamethasone on the Incidence and Severity of Respiratory Distress Syndrome in Multifetal Gestation between 24 and 34 weeks**

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**Gynecol Obstet Invest 2001; 52(1):26-33**

The objective of the study was to evaluate the effects of antenatal corticosteroid therapy in multiple pregnancy on the incidence and severity of respiratory distress syndrome (RDS). Twenty-two women with twin, 12 with triplet and 2 with quadruplet pregnancies and an emergency group of 20 mothers with twin pregnancies, who only had one course of dexamethasone, were compared with controls. Corticosteroid therapy was associated with a reduction in moderate to severe RDS in all groups (twins  $p < 0.01$ , triplets and quadruplets  $p < 0.008$ ) and the emergency group with dexamethasone therapy ( $p < 0.036$ ) when compared to their individual controls.

Dexamethasone reduced the duration of stay in the neonatal intensive care unit of the emergency twin group ( $p < 0.01$ ). Neonatal birth weights were significantly less in all groups treated with repeated doses in comparison to the controls.

## **Over-the-counter Use of Oral Contraceptives in Kuwait**

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**Int J Gynaecol Obstet 2001; 73(3):243-251**

Oral contraceptive pills (OCPs) are available over-the-counter (OTC) in Kuwait, and constitute a leading method for spacing and limiting children. Data from a nationally representative survey of Kuwaiti women are used to examine OTC use of OCPs.

One-fourth of the women initiated use without consulting a doctor, and 50% bought OCPs from the pharmacy. No socioeconomic or demographic differences were found between those who consulted a physician, implying that women of different background have similar accessibility to the physician. Using multivariate analysis, the odds of consulting a physician were found to be significantly lower for women who first bought OCPs directly from the commercial pharmacy. The duration of first time OCP use did not differ according to physician consultation. It is concluded that OTC availability of OCPs has many advantages and prevents unwanted pregnancy. However, there is a need for better packaging and instructions that would enable high-risk women to identify themselves and to use OCPs under physician supervision.

## Comparison of Safety of Glucose Oral Rehydration Solution and Maize Oral Rehydration Therapy for Home Management of Diarrhoea in Kenya

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**J Trop Pediatr 2001; 47(4):226-229**

Safety margins and variability in the composition of glucose and maize-based oral rehydration therapy (ORT) prepared by mothers in a rural district of Western Kenya, are reported here. In a 2-year longitudinal field study, packets containing glucose ORS and a home solution made with maize and table salts, were provided to the mothers of 6180 children in Kakamega District in two separate sub-locations. Experienced and trained field workers supported by community registered nurses provided training for the preparation and use of ORT during weekly visits to every household. On four occasions separated by 4-6 months, a 5 per cent random sampling was done of the home-prepared solutions actually used for the treatment of children with diarrhoea. The water used for preparing ORT was also sampled. Samples of 174 glucose-based ORT, 148 maize-salt ORT, and 201 samples of water were analysed. Only 2 per cent of the maize-based ORT were above 120 meq/1 sodium (i.e., the safe range of sodium concentration) compared to 17.8 per cent for glucose solutions ( $p < 0.001$ ). Home water samples contained substantial amounts of salt, which could unpredictably affect the final composition of the ORT solutions. We conclude that maize-salt ORT had a better margin of safety than glucose-based ORS.

## Th1 and Th2 Cytokine Profiles in Recurrent Aborters with Successful Pregnancy and with Subsequent Abortions

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**Hum Reprod 2001; 16(10):2219-2226**

**Back ground:** This study compared Th1-Th2 cytokine profiles in a subgroup of recurrent aborters who had an abortion with those in a subgroup of recurrent aborters who had a successful pregnancy.

**Methods:** Fifty-four women with a history of at least three normal pregnancies, 24 women with a history of recurrent spontaneous abortion (RSA) followed by abortion (RSA-->A) and 39 women with a history of RSA followed by normal pregnancy (RSA-->N) were studied. Blood samples and placentas were obtained at the time of delivery or abortion; peripheral blood mononuclear cells were stimulated separately with phytohaemagglutinin and with autologous placental cells, and the secreted cytokines estimated.

**Results:** Peripheral blood mononuclear cells from the RSA-->N subgroup secreted higher concentrations of Th1-type cytokines as compared with normal pregnant women, indicating a higher Th1 bias in these women. However, women in the RSA-->N subgroup had significantly higher concentrations of Th2 cytokines as compared with women in the RSA-->A subgroup. A comparison of Th1:Th2 cytokine ratios indicated a higher Th2 bias in RSA-->N women as compared with RSA-->A women.

**Conclusions:** We conclude that abortion-prone women who proceed to have successful pregnancy are more Th2-biased than abortion-prone women who abort, and that recurrent aborters who undergo spontaneous abortion have a stronger Th1 bias than aborters who have normal pregnancy.

## **Avascular Necrosis of the Hip in Children with Sickle Cell Disease and High Hb Magnetic Resonance Imaging Findings and Influence of Alpha-thalassemia Trait**

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**Acta Haematol 2001; 105(1):27-31**

Avascular necrosis (AVN) of the hip is a common cause of morbidity in sickle cell disease (SCD). Its prevalence increases with age and predisposing factors include coexistent alpha-thalassemia trait, frequent vaso-occlusive crisis and a high hematocrit (Hct). SCD is relatively mild among Kuwaiti patients because of their elevated Hb F levels, but a subset exists with severe recurrent vaso-occlusive crises. We carried out a prospective magnetic resonance imaging (MRI) study of the hip in a group of patients being followed in the Pediatric Hematology clinics of Al-Mubarak and Al-Amiri Hospitals. The association of AVN with age, frequency of hospitalization, alpha-thal trait, steady-state Hb, Hct, Hb F, WBC and platelet counts was investigated. MRI was carried out with a 1.5-tesla GE unit with a super-conducting magnet. Thirty patients (19 males, 11 females) (23 SS and 7 SbetaThal) were studied. Their ages ranged from 6 to 17 years, with a mean of 9.8 +/- 3.5 years, and Hb F from 11 to 35% with a mean of 22.8 +/- 5.7%. Among the SS patients, 11 (47.8%) had coexistent alpha-thal trait (-3.7-kb deletion). A total of 8 (26.7%) patients (6 SS and 2 SbetaThal) had varying degrees of osteonecrosis of the hip. Four (36.4%) of the 11 SS patients with alpha-thal trait and 2 (16.7%) of those without alpha-thal trait had osteonecrosis. This difference is, however, not statistically significant ( $\chi^2 = 0.3$ ,  $p = 0.5$ ). While there was also no significant difference in the mean age and hematological parameters (Hb, Hct, Hb F, WBC, platelets), the SS patients with osteonecrosis had a significantly higher number of hospitalizations for vaso-occlusive crisis in the preceding 3 years than those without osteonecrosis.

## **Polyphosphate Accumulation and Oxidative DNA Damage Insuperoxide Dismutase-deficient Escherichia Coli**

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**Free Radic Biol Med 2001; 31(11):1352-1359**

Inorganic polyphosphate is a ubiquitous, linear polymer of phosphate residues linked by high-energy phosphoanhydride bonds. In response to starvation, polyP levels are increased up to 100-fold. It has been proposed that chelation of transition metals by polyP might reduce their toxicity, and that polyP accumulation is vital for survival in stationary phase. SOD-deficient *E. coli* is unable to survive in stationary phase. We found that deletion of the cytoplasmic SODs does not impair the cell's capability of synthesizing polyP. However, transient accumulation of polyphosphate correlated with increased resistance to H<sub>2</sub>O<sub>2</sub> and protection of DNA against oxidative damage. The reason for this protective effect of polyP is the induction of HPII catalase and DNA repair enzymes as members of the rpoS regulon. PolyP did not directly protect DNA against oxidative damage in vitro and acted as a pro-oxidant by stimulating the production of hydroxyl radical in the Fenton reaction. It is thus suggested that accumulation of poly P and rpoS induction cannot compensate for the lack of cytosolic SODs for survival in stationary phase.