

1101 OCCUPATIONAL BRUCELLOSIS IN A PREGNANT LABORATORY WORKER: A CASE REPORT

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Brucellosis is not commonly notified as an occupational disease in Malaysia. This could be due to the prevalence of brucellosis which is still low in this region. This report describes about a 20 week pregnant laboratory worker who was exposed to a confirmed brucella positive blood smear and developed brucellosis. The worker did not develop any symptoms initially and was not started on any prophylaxis. However her first blood serology for brucella was positive and during that time, the worker developed premature contraction and was admitted for tocolysis. The same test which was conducted two weeks later showed the similar positive result. Eventually she was started on Tablet Bactrim twice daily for three weeks. Currently she is fine. Workplace investigation revealed that the patient's blood culture was handled in an open bench and the recommended practice was not followed.

1194 BIOMONITORING OF HEALTH CARE PERSONNEL INVOLVED IN THE PREPARATION AND ADMINISTRATION OF ANTICANCER DRUGS IN THREE ITALIAN HOSPITALS

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Introduction Most of anticancer drugs has in common DNA-damaging properties, therefore health care personnel who handle such drugs is at risk for adverse health effects. We aimed to evaluate exposure and its genotoxic and cytotoxic effects in technicians and nurses who prepare and administer anticancer drugs in oncology units of different hospitals.

Methods In the hospitals (A,B,C) we studied 17 pharmacy technicians/nurses who prepare anticancer drugs, 25 nurses who administer them and 53 controls. Workplace monitoring of 5-fluorouracil (5FU) and gemcitabine (GEM) was performed by HPLC-UV on wipes/swabs collected in areas of pharmacy and administering wards. Personal exposure to 5FU and GEM was monitored by pads. We measured urinary metabolite α -fluoro- β -alanine by LC-MS-MS. We calculated total amount of handled drugs. Buccal micronucleus cytome (BMCyt) assay was used to evaluate DNA damage (micronuclei MN and nuclear buds NB), cytokinetic defects (binucleated cells BN) and cell death (as condensed chromatin CC).

Results Drug contamination was found only in the 30% of wipe/swab samples, with GEM more frequently present than 5FU. Contamination didn't show significant difference among the hospitals. Only GEM deposition was found on workers' pads (93% of samples). No α -fluoro- β -alanine was found. Total amount of prepared drugs was similar in A and B and higher than C. B prepared drugs only manually while in A they were prepared automatically/manually. In A and B we

found in workers who prepare drugs, higher genotoxicity than respective controls. Total amounts of administered drugs were in A>B>C. Nurses who administer drugs showed higher genotoxic (%MN) and cytotoxic (%CC) effects than controls in A and C.

Conclusion These findings show that total amount of prepared drugs correlate with higher genotoxicity found in A and B. We also demonstrate the suitability of BMCyt assay as sensitive and no invasive biomarker of early effect for occupational antineoplastic exposure.

1334 A SIMPLE METHOD TO DETERMINE THE CUMULATIVE DOSE IN OUTDOOR WORKERS EXPOSED TO SOLAR RADIATION

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Introduction Solar radiation may have adverse effects, both acute and long-term, on skin and eye, mainly due to the UV component. Outdoor workers are significantly exposed to solar UV radiation, but exposure is highly variable, depending on environmental, occupational and personal features. Outdoor workers' exposure to Solar Radiation (SR) is still an underestimated risk factor in several countries, particularly in Italy, even if it has been included for years in the carcinogenic for humans by (IARC). The scarce attention paid by employers to this risk imports as an insufficient prevention, as well as a difficulty in recognising in retrospect the causal relation between the long time exposure of workers and the eventual skin cancer; in particular, this can happen when the melanoma occurs in body districts which were less exposed to direct SR. Individual exposure may be measured by using personal dosimeters, but presently operative concerns may limit or even prevent their usage in a lot of cases. Several indirect methods to assess UV exposure of outdoor workers have been proposed, with no general agreement. Also, there may be need to assess lifetime cumulative exposure of an individual worker for both epidemiological and legal purposes. This work describes a method for reconstructing the annual exposure dose starting from the data obtained by a questionnaire filled by the worker.

Methods An algorithm has been developed for reconstructing the annual exposure dose of SR related to the worker. The mean radiant exposure of one month in a selected place was derived from satellite data (TEMIS-ESA) and the mean global irradiance on the same period was provided by ENEA on the basis of measured data; both data consider the cloudy coverage and the ozone column, and the satellite data are the mean of five years. The ratio of these two values gives a coefficient for estimating the mean erythemal dose of one month on the horizontal plane; successive corrections relative to the number of working hours and day, clothing, albedo and position of the body district exposed were applied.

Results First validation tests demonstrated that the algorithm estimates the mean daily erythemal dose with an optimal approximation respect to the values deriving from on field measurement campaign. Successive validation test will be

carried out with extensive measurements involving workers of specific sectors (fishing, farming, quarry).

Conclusion The developed algorithm is an instrument useful for determining the cumulative UV erythral dose of workers with the best possible level of approximation, since it was obtained on the basis of the previous working exposure derived from a questionnaire filled by the worker itself. The algorithm can be also used as prevention instrument for the previous evaluation of the occupational risk.

1408 SURGICAL SMOKE – WHAT IS IT AND WHAT ARE THE RISKS? A REVIEW

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Introduction Operating room (OR) staff are exposed to surgical smoke on a daily basis. With the increased use of intraoperative smoke-generating devices, this is a significant occupational health hazard.

Methods A database search was performed for literature on surgical smoke from 1980–2017.

Results Electro-, laser and ultrasonic surgical techniques produce surgical smoke. 95% of surgical smoke is water and 5% is a combination of chemicals and cellular debris. Up to eighty chemicals, including the carcinogen Benzene, have been identified. The chemical load from cautery of one gram of tissue is comparable to that derived from six cigarettes. HIV and HPV viral DNA have been isolated, and both Staphylococcus and Neisseria cultured from surgical smoke. At less than ten micrometres in diameter, surgical smoke particles can remain airborne and are inhalable; the smallest fractions entering the alveoli. Smoke particles diffuse along concentration gradients within the OR atmosphere exposing all staff, and not just the operator or those scrubbed. Animal studies have demonstrated pulmonary congestion, interstitial pneumonia and emphysema secondary to surgical smoke exposure. Associated symptoms reported by staff include headache, problematic lacrimation and cough – affecting 58%, 42% and 20% of doctors respectively in one survey. An association with cancer has been made through case series. Standard surgical facemasks offer no protection; whilst portable evacuation devices are the best risk reduction measure. No legislation currently exists in the United Kingdom, but many international organisations offer guidance on minimising surgical smoke exposure in the workplace.

Conclusion OR staff training and policies should align with the latest guidance so that appropriate risk reduction measures can be put in place to protect health.

1438 PREVALENCE OF PRESENTEEISM AND ITS ASSOCIATED FACTORS AMONG NURSES IN A TEACHING HOSPITAL IN NIGERIA

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Introduction Presenteeism is defined as going to work despite having medical conditions that suggest one should be absent. There is dearth of studies on presenteeism among nurses

globally, especially in Africa, and Nigeria inclusive. This study therefore assessed the prevalence of presenteeism and its associated factors among nurses at a teaching hospital in Nigeria.

Methods A Cross-sectional study was carried out among nurses (317) at the University of Benin Teaching Hospital, Nigeria (August 2015 to July 2016). Inclusion criteria were nurses, who had worked in direct assistance to patients, gave their consent and had spent at least one year in the service of the hospital. Stratified random sampling technique was utilised. Pre-tested, self-administered questionnaire was used for data collection. Minimum Sample size calculated was 317. Data was analysed using IBM SPSS Version 21.0. Ethical approval was gotten and confidentiality was ensured during the study.

Results The response rate was 100% and the mean age of the respondents was 41.9±9.2 years. In the last 12 months, 242 (76.3%) respondents had reported to work sick and out of these 77 (31.8%) had reported twice, 48 (19.8%) had reported seven times while 32 (13.2%) had reported thrice. Several reasons were given for going to work sick. Age, marital status, years worked in the hospital, nursing cadre, highest level of qualification and level of job satisfaction were found to be associated with presenteeism ($p<0.05$).

Discussion The high prevalence of presenteeism in this study could be attributed to high level of job satisfaction and heavier workload after a sick leave. Among the respondents that had reported to work sick in the last 12 months, malaria was the commonest condition. Nigeria is a malaria endemic region. It is recommended that the management of the hospital pay closer attention to the consequences of nurses' presenteeism.

1470 EVALUATION OF THE OCCUPATIONAL BIOLOGICAL RISK AT THE HEMODIALYSIS CENTRES OF CASABLANCA

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Introduction accidental blood exposures (ABE) are common in everyday practice. On a daily basis, they represent an indisputable risk for various categories of medical occupations. In hemodialysis, the risk of ABE is omnipresent for health care professionals.

Methods This is a study carried out amongst the staff of hemodialysis centres in the public health sector of the city of Casablanca using a questionnaire containing four sections: general information, ABE risk assessment, conduct in case of ABE and prevention evaluation.

Results One hundred people responded to the questionnaire, with 52 physicians and 48 paramedics. The most common acts were the pose of catheters, followed by venous sampling and the attachment of infusions. Respectively, 65% and 61% of the respondents brought up the concept of recapping and manual mismatching of needles. Thirty two doctors and 32 nurses were victims of ABE, 59 were puncture cases and 22 were projection accidents. Twenty-eight of them were in an emergency situation and 23 were in front of a patient who was difficult to prick. Thirty participants had received training on ABE.

Discussion in a French epidemiological study, they found that 70.2% of the ABE in dialysis were punctures, which matches our results (70%). They also found that 63% of ABE were preventable only by respecting standard precautions and