

The UK Medical Students' Association was formed in July 2010 to serve as a centralized organization that could consolidate student resources, unify disparate societies and provide support to students nationwide. It reflects the combined effort of a board of over 50 students, doctors, researchers and professors who work tirelessly to support tomorrow's doctors.

On 2 May 2014, the UKMSA held its third annual conference at the Harrogate International Centre. The event was kindly hosted by the Association of Surgeons' of Great Britain and Ireland who ran the parallel and single largest European surgical congress of 2014. The conference is the UKMSA's flagship event in which students are brought together to present their research, network, foster collaborations and hear from influential speakers. The quality of abstracts was exceptional and we are proud that three of the best have been selected for publication in this issue of *BJHM*.

Prize winners

The relationship between allostatic load, neighbourhood deprivation and cognitive function: an exploratory analysis

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Introduction: Deprivation is associated with greater stress and allostatic load. Greater allostatic load is associated with poorer cognitive functioning. Poorer cognitive function is linked to deprivation. This project explores these relationships at a neighbourhood level in a middle-aged population.

Methods: Blood samples and cognitive function tests were conducted on 666 participants of the pSoBid study from the most and least deprived areas of Glasgow. Secondary analysis of these data was performed. This involved identification of inflammatory and metabolic stress biomarkers. Summary indices were then calculated

for each to produce a metabolic allostatic load index (MALI; a summary measure of glucose, insulin, cholesterol, triglyceride, low density lipoprotein and high density lipoprotein levels) and an inflammatory allostatic load index (IALI; a summary measure of fibrinogen, C-reactive protein, interleukin-6, intercellular adhesion molecule and D-dimer levels). Univariate analysis of associations between cognitive function tests, deprivation status and allostatic load was subsequently conducted.

Results: The most deprived group performed poorly in all cognitive function tests ($P < 0.001$), and had greater MALI (mean difference -0.18 , 95% confidence interval -0.21 – -0.08) and IALI (mean difference -0.34 , 95% confidence interval -0.43 – -0.26) compared to the least deprived group. Mean cholesterol (mean difference 0.34 , 95% confidence interval 0.18 – 0.50) and low density lipoprotein levels (mean difference 0.13 , 95% confidence interval 0.07 – 0.19) were lower in the most deprived group. All cognitive function tests were associated with IALI ($P < 0.001$); only two were associated with MALI.

Conclusions: The findings suggest an association between neighbourhood deprivation and poor cognition. As deprivation, allostatic load and cognitive function are likely to be inter-related, multivariate analysis is warranted in future studies.

Health system barriers faced by health-care workers in providing prevention of mother-to-child HIV transmission services in Kampala, Uganda

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Introduction: Mother-to-child transmission accounts for 18% of new HIV infections in Uganda. This can be reduced via services aiming to prevent mother-to-child HIV transmission, but health system barriers exist which compromise provision. This

study identified key barriers in provision of prevention of mother-to-child HIV transmission care in Kampala, Uganda.

Methods: A qualitative study was conducted across three sites using in-depth, semi-structured interviews. Purposive sampling was used to select 12 prevention of mother-to-child HIV transmission health-care workers to explore their views on health system barriers compromising provision of prevention of mother-to-child HIV transmission services. The data were analysed using thematic content analysis.

Results: Prevention of mother-to-child transmission services were available in all three study sites. However, several health system barriers were compromising provision of prevention of mother-to-child HIV transmission services. These included a shortage of trained human resources, a lack of space to run clinics, inaccessibility of services, and poor leadership and governance to decentralize services. This reduced the quality of care, decreased staff morale, created missed opportunities for antiretroviral therapy uptake, and meant a severe lack of services in rural areas.

Conclusions: There are many barriers restricting the provision of services to prevent mother-to-child HIV transmission. Interventions to increase prevention of mother-to-child HIV transmission are heavily dependent on increased financial investment. Non-government organizations are temporarily helping the situation but there is a need for more sustainable and culturally-considerate interventions to be implemented.

Adjunct molecular testing enhances the diagnosis of papillary thyroid cancer in detected nodules and guides preoperative management

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Introduction: Fine needle aspiration cytology is the gold standard for initial evalua-

tion of thyroid nodules, but 15–30% of aspirates are classified as indeterminate. BRAFV600E activating mutations are absent in benign neoplasms and highly specific for papillary thyroid cancer. The use of molecular testing for BRAFV600E mutations may confirm malignancy and help plan surgery in these cases.

Methods: This study aimed to elucidate the prevalence of BRAFV600E mutations in Thy2–5 categories and evaluate the usefulness of the test for the multidisciplinary team.

Sixty-six thyroid fine needle aspiration samples were analysed from 58 patients. Genomic DNA was extracted and amplified by polymerase chain reaction and analysed using pyrosequencing. The hypothesis was that the test would enhance the sensitivity of fine needle aspiration cytology and guide preoperative management.

Results: BRAFV600E mutations (c.1799T>A) were detected in 12.5% of Thy2 (non-neoplastic), 14.3% of Thy3 (neoplasm possible), 75% of Thy4 (suspi-

cious for malignancy) and 50% of Thy5 (malignant) cytological categories.

Conclusions: The results showed that BRAFV600E molecular testing reduces false negative diagnoses by detecting malignancy in the Thy3 category and helps the multidisciplinary team to plan surgery in these patients. This test also detects malignant nodules in Thy2 patients who may otherwise remain undiagnosed. Adjunct BRAFV600E molecular testing increases the sensitivity of cytopathological diagnosis of fine needle aspiration samples.

IMAGES IN MEDICINE

Pneumatosis cystoides intestinalis with pneumoperitoneum in a renal transplant patient

A 68-year-old man presented to accident and emergency with a 3-week history of diarrhoea and vomiting. He had received a cadaveric (donor after cardiac death) cytomegalovirus positive kidney transplant for polycystic kidney disease a year previously and was given valganciclovir in the post-transplant period. His renal function was stable, and he was taking prednisolone, ciclosporin and low dose mycophenolate mofetil.

A stool sample was positive for norovirus. The abdominal X-ray showed retroperitoneal air (*Figure 1*) which was confirmed on computed tomography (*Figure 2*).

Serum cytomegalovirus was undetectable and colonoscopy did not show any cytomegalovirus colitis. A diagnosis of pneumatosis cystoides intestinalis was made and the patient was treated conservatively with successful resolution of

findings despite the presence of pneumoperitoneum (Wayne et al, 2010).

Immunosuppression is one of the more common causes of pneumatosis (Ammons et al, 1986). It has been suggested that steroid therapy and immunosuppressed states lead to the depletion of Peyer patches, resulting in loss of structural integrity of the bowel wall (Chelimsky et al, 2003). Concomitant infection in these

Figure 1. Free intraperitoneal, retroperitoneal and intramural air in and around the small and large bowel.



patients increases the risk of pneumatosis intestinalis. **BJHM**

Ammons MA, Bauling PC, Weil R (1986) Pneumatosis cystoides intestinalis with pneumoperitoneum in renal transplant patients on cyclosporine and prednisone. *Transplant Proc* 18(6): 1868–70

Chelimsky G, Blanchard S, Sivit C et al (2003) Pneumatosis intestinalis and diarrhea in a child following renal transplantation. *Pediatr Transplant* 7(3): 236–9

Wayne E, Ough M, Wu A, Liao J, Andresen KJ, Kuehn D, Wilkinson N (2010) Management algorithm for pneumatosis intestinalis and portal venous gas: treatment and outcome of 88 consecutive cases. *J Gastrointest Surg* 14: 437–48

Figure 2. The 'bubbly' distribution of the pneumatosis retroperitoneally around the kidneys is indicative of a benign cause.



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