

Evidence-based mechanism of dipeptidyl peptidase IV (DPP4) inhibitors in diabetic foot ulcer healing

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Background/Aims: Diabetic foot wounds are one of the most serious complications of the disease, giving rise to 84% of all diabetes-related lower limb amputations. The anti-diabetic dipeptidyl peptidase IV (DPP-4) inhibitors have been reported to improve diabetic foot wound healing. However little is known about how it occurs. The aim of the study was to review DPP-4 inhibitors' mechanism of wound healing in subjects with diabetic foot ulcers. **Methods:** Published data on DPP-4 inhibitors in wound healing were sought from MEDLINE, PubMed and Google Scholar searches of English language literature from 1994 to 2014, using the key words 'DPP-4 inhibitors', 'endothelial healing', 'diabetes' and 'chronic ulcers'. **Results:** DPP-4 inhibitors show a potential benefit in the processes of wound healing in diabetic chronic foot ulcers. The enzyme inhibitors promote recruitment of endothelial progenitor cells and allow the final scaffolding of wounds. Furthermore, DPP-4 inhibitors augment angiogenesis and have widespread effects on optimising the immune response to persistent hypoxia in chronic diabetes wounds. **Conclusion:** DPP-4 inhibitors show promise in the local wound healing of diabetic foot ulcers through multiple mechanisms. In the light of high rate of amputations due to non-healing ulcers, with profound psychological and economical liability, more investigations on the new role of DPP-4 inhibitors in treatment of diabetic foot ulcer are needed.

Hepatitis B status of Papua New Guinea (PNG) short-term students attending the Townsville Sexual Health Service

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Background/Aims: The WHO estimates that over 560 000 (>8%) of the PNG population have chronic hepatitis B, which frequently progresses to severe liver disease and cancer. In PNG in 2008, liver cancer was the leading cause of male cancer deaths. Following the diagnosis of STI-related complications in a number of PNG students accessing the nurse-led sexual health clinic, we initiated a targeted testing and STI education program. **Methods:** From 2012-2013, 226 PNG students were tested for several STIs including hepatitis B. Education sessions, including a hepatitis B target resource were developed and a vaccination program implemented. **Results:** All students (n=227) participated in the education sessions. Two hundred and twenty-six students (99.6%) were tested for hepatitis B. Serology indicated that 44 (19.5%) had infectious hepatitis B with 21 (47%) being surface antigen E positive. One hundred and twenty-nine (57.1%) were immune, of which 87 (67%) were core antibody positive. Fifty-three (23.5%) students had no antibodies. Those with infectious hepatitis received one-on-one health advice and all received written materials. All antibody-negative students commenced hepatitis B vaccination and all diagnosed STIs were treated and managed. **Conclusion:** The prevalence of hepatitis B was consistent with rates in endemic countries with over 58% of this population being exposed to hepatitis B and 19.5% remaining infectious. Although the students are only in the clinic's region for one semester, as hepatitis B is transmitted through sexual as well as non-sexual contact, the awareness of status and vaccination are important public health measures to curb the spread of infection.

Mum ICU: who are you?

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Background/Aims: The need for critical care support in the intensive care unit (ICU) during pregnancy or in the postnatal period is relatively uncommon in the developed world at 0.7-13.5 per 1000 births. Recent epidemiological studies have reported rising rates of maternal morbidity in Australia. The aim of this study was to develop an understanding of the demographical and clinical picture of pregnant and postnatal women who require care in the ICU at The Townsville Hospital (TTH). **Methods:** A medical record review of all pregnant and postnatal women admitted to TTH ICU between 1 January 2006 and 31 December 2013 was undertaken (n=82). **Results:** The main diagnosis for women requiring ICU care at TTH is hypertensive disorder of pregnancy. The average length of stay is short (50.8 hours). Most women admitted to ICU require minimal interventions. Aboriginal women and women from rural and remote areas are disproportionately represented. **Conclusion:** There is minimal published research in this area of health care and further research is required.



From evidence- to science-based medicine

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Background/Aims: Evidence-based medicine (EBM) tends to dismiss treatments which lead to non-statistically significant results and labels such treatments as having 'no effect'. If all such treatments really had no effect, there would be as many non-significantly negative results as non-significantly positive results. In practice there is a considerable excess of weakly positive results. This presentation suggests possible ways of using data on the distribution of summary statistical values to improve the EBM paradigm. **Methods:** A sample of 100 summary statistical values was chosen randomly from the Cochrane collection for evidence-based medicine. Several models were used to analyse the data. **Results:** Weakly positive values outnumber weakly negative by about 3:1, suggesting that about two-thirds of weakly positive results are being produced by treatments which have at least a small positive effect rather than deserving the 'no effect' label. More complex models of this data agree with this estimate, albeit with wide confidence intervals. **Conclusion:** With further data collection and research, it will become possible to give a probability that a treatment is effective rather than assign dichotomous labels 'effective' and of 'no effect' to treatments. Knowledge about the treatment aside from the statistical result, and knowledge of the cost of making a wrong assessment of treatments can be further incorporated into decision making, so that treatments are based on science and not just the vagaries of statistical assessment.