

patients (15%) were lost to follow-up. **Conclusion:** Improvements could be made in the documentation of important parts of the history and clinical features that identify those patients diagnosed with PID.

## Di-peptidyl peptidase IV Inhibitors: a new horizon in management of atherosclerosis: a review

Tejas P. Singh,<sup>1</sup> Venkat N. Vangaveti<sup>1</sup> and Usman H. Malabu<sup>1,2</sup>

<sup>1</sup>Translational Research on Endocrinology and Diabetes (TREAD), College of Medicine and Dentistry, James Cook University, Queensland

<sup>2</sup>Department of Endocrinology and Diabetes, The Townsville Hospital, Townsville, Queensland

**Background/Aims:** Dipeptidyl peptidase-IV (DPP-4) inhibitors are a relatively new class of anti-diabetic drugs that have therapeutic potential for management of atherosclerosis. Of the numerous DPP4-inhibitors in clinical practice, no studies have been conducted to compare their anti-atherosclerotic effects despite growing evidence of their usefulness in the high-risk population. The aim of the study is to evaluate and grade the anti-atherothrombotic effects of DPP-4 inhibitors in subjects with atherosclerosis. **Methods:** A literature search was conducted on MEDLINE and the Cochrane Library using the terms 'DPP-4 Inhibitors', 'atherosclerosis', 'GLP', 'inflammation', 'cytokines', 'stroke', 'ischaemic heart disease', 'hypertension' and 'peripheral vascular disease'. A mathematical model devised by us was used to derive and compare the anti-inflammatory effects of the DPP-4 inhibitors using protective score (PS). Data were analysed for alogliptin, linagliptin, saxagliptin, sitagliptin, and vildagliptin. **Results:** Sixty-two published studies collected in the search were assessed for relevance to this study. Sitagliptin had the highest PS (n=5) while Linagliptin and Saxagliptin yielded the lowest PS (n=1). This comparison and scoring system was limited to the data collected, which did not investigate all athero-thrombotic factors selected in this study. **Conclusion:** The findings reflected superiority of sitagliptin over the other DPP-4 inhibitors in the management of atherosclerosis. Further investigations are required to establish specific inflammatory cytokines influenced by the DPP-4 inhibitors and to elucidate their clinical application in atherothrombotic disease.

## Dipeptidyl-peptidase IV (DPP4) inhibitors' cholesterol lowering effect: a systematic review

Salman M. Junejo, Venkat N. Vangaveti and Usman H. Malabu

Translational Research on Endocrinology and Diabetes (TREAD), College of Medicine and Dentistry, James Cook University, Townsville, Queensland

**Background/Aims:** Dipeptidyl peptidase-IV (DPP-4) inhibitors are a relatively new class of anti-diabetic drugs that have therapeutic potential for management of hypercholesterolemia. Of the numerous DPP4-inhibitors in clinical practice, no systematic review has been conducted to compare their anti-hypercholesterolemic effect, despite growing evidence of their usefulness in the high risk population. **Methods:** A systematic review of existing literature investigating cholesterol-lowering effects of DPP4 inhibitors was conducted. Published data on DPP-4 inhibitors use for more than six months in hypercholesterolemic subjects were sought from MEDLINE, PubMed and Google Scholar search of English language literature from 1994 to 2014 using the key words: 'DPP-4 inhibitors', 'hypercholesterolemia', 'dyslipidemia' and 'hyperlipidemia'. **Results:** A total of six full-text published studies conducted worldwide were included in this systematic review, comprising a total of 3968 subjects. Anti-hypercholesterolemic effects range between 13.3% reduction in total cholesterol by sitagliptin and vildagliptin, to no effect by linagliptin. Conversely, saxagliptin demonstrated modest anti-hypercholesterolemic effect. **Conclusions:** These findings reflected potential benefit of using DPP-4 inhibitors in the management of hypercholesterolemia particularly in subjects with diabetes. Further investigations are required to

establish specific anti-hypercholesterolemic effects of DPP-4 inhibitors and to elucidate their clinical application in addition to its established anti-diabetic effects.

## Effects of microalgae-containing diet on the behavioural consequences of chronic psychosocial stress in mice

Christina Morianos,<sup>1</sup> Kirsten Heimann<sup>2,3,4</sup> and Zoltan Sarnyai<sup>1,3,4</sup>

<sup>1</sup>Laboratory of Psychiatric Neuroscience, College of Public Health, Medical and Veterinary Sciences, James Cook University, Townsville, Queensland

<sup>2</sup>College of Marine and Environmental Sciences, James Cook University, Townsville,

<sup>3</sup>Comparative Genomics Centre

<sup>4</sup>Centre for Biodiscovery and Molecular Development of Therapeutics, James Cook University, Townsville, Queensland

**Background/Aims:** Marine microalgae contain a large variety of bioactive substances that can be harnessed for their therapeutic potentials, including polyunsaturated fatty acids (PUFA), sterols, carotenoids, pigments, proteins and vitamins. A possible implication of these bioactive molecules is to control inflammatory processes. Stress-related mental illnesses, such as depression, have been associated with systemic inflammatory processes. However, the effects of microalgal diet on behaviour have not been investigated. The aim of this study is to examine the effect of microalgal diet on the depression-related behavioural consequences of chronic social defeat (CSD) in mice. **Methods:** From the age of 21 days for 11 weeks mice were fed with either (1) control normal mouse chow, or mouse chow containing (2) high concentration of saturated fats (high-fat 'Western diet'; HFD), or (3) microalgal biomass with high concentration of PUFAs (including docosahexanoic acid, DHA), or (4) de-fatted algal biomass (ALG). Mice were then either subjected to CSD or remained undisturbed. Psychomotor activity, anxiety-like behaviour and cognitive functions were measured using open-field, elevated plus maze, Y-maze and novel object recognition, respectively, taking advantage of a behavioural recognition software, TopScanLite (CleverSystem). **Results:** CSD induced social avoidance in HFD and DHA mice. ALG feeding prevented psychomotor retardation and cognitive impairments induced by CSD but HFD and DHA resulted in a worsening of the behavioural consequences of CSD. **Conclusion:** Our preliminary results show that certain bioactive compounds contained in the de-fatted microalgae may have beneficial effects in preventing adverse behavioural consequences of chronic psychosocial stress in mice and high DHA concentrations should be used with caution.

## Emergency packs (EP) in ED: improving safety, efficacy and continuity of care by including consumer medication information (CMI)

Kathryn Rutherford and Stephen Perks

Pharmacy Department, The Townsville Hospital, Townsville, Queensland

**Background/Aims:** Many emergency departments (EDs) state-wide use emergency pack (EP) systems for discharging patients outside of pharmacy hours. Patients receive the EP without counselling from a pharmacist. Not all medications have consumer medication information (CMI) pre-supplied. The Pharmacy Board of Australia, Pharmaceutical Society of Australia and the Society of Hospital Pharmacists Australia all advocate for the provision of CMI. Their use is well documented to improve safety, compliance and continuity of care. Under these circumstances where a pharmacist is unavailable, a CMI is highly recommended. The aim of this study is to review and improve the current EP processes across the health district to meet standards held by our professional governing bodies. **Methods:** EP stock holding of four hospitals within our health service district was reviewed to determine the percentage of EPs that contained CMIs. The current procedure was changed so that