



TOWNSVILLE RESEARCH WEEK

PROGRAM
12-15 SEPTEMBER, 2016

Partners in research



POSTER ABSTRACTS

Aspirin in the chemoprevention of cancer: Can we kill three birds with one stone?

Nimisha Aithal

James Cook University, Townsville, Queensland

Background: Aspirin is widely used in the prevention of vascular events throughout the world. Studies have also shown a decrease in the risk of certain cancers in those who consume regular aspirin. However, the possibility of using aspirin as a chemoprotective agent in the simultaneous primary prevention of multiple cancers has not been explored. **Method:** Colorectal cancer, lung cancer and pancreatic cancer were chosen for their substantial burden of disease, limitations in existing screening measures and overlapping risk factors. The available evidence regarding efficacy of aspirin in reducing colorectal cancer, lung cancer and pancreatic cancer was reviewed, along with the dosing regimens required to produce an effect. **Results:** Although aspirin has been shown to reduce colorectal cancer risk, there are many inconsistencies regarding its effect on lung cancer and pancreatic cancer risk. Furthermore, dosing strategies required vary between studies and efficacy of aspirin use in high risk population is not known. **Conclusions:** At the current time, a common aspirin dosing strategy for the simultaneous chemoprevention of colorectal cancer, lung cancer and pancreatic cancer is not possible. Lifestyle modification may be the better option to simultaneously reduce the risk of three cancers. Further research is need into use of aspirin as a cancer prevention drug.

Antioxidant therapy improves sperm DNA integrity in boars during summer

Santiago Peña Jr^{1,2,3}, Bruce Gummow^{3,4}, Anthony Parker⁵, Damien Paris²

¹College of Veterinary Medicine, Visayas State University, Baybay City, Leyte, Philippines

²Discipline of Biomedical Science, College of Public Health, Medical & Veterinary Sciences, James Cook University, Townsville, Queensland

³Discipline of Veterinary Science, College of Public Health, Medical & Veterinary Sciences, James Cook University, Townsville, Queensland

⁴Faculty of Veterinary Science, University of Pretoria, Onderstepoort, South Africa

⁵College of Food, Agricultural & Environmental Sciences, Ohio State University, Wooster, USA

Background: Summer infertility due to heat stress significantly affects the reproductive potential of pigs causing over \$300 million per year in lost productivity to the US pig industry and billions worldwide. The boar's inefficient capacity to sweat; non-pendulous scrotum, and the high susceptibility of boar sperm to temperature shock appears to correlate with higher sperm DNA damage during summer. Heat stress-induced sperm DNA damage can result in early embryo loss, as demonstrated in mice. This study investigated whether supplementing boars with antioxidants during summer could improve boar sperm DNA integrity. **Method:** Motility of sperm obtained from n=5 Large White boars housed in the dry tropics of Townsville, Queensland, Australia were analysed using Computer-Assisted Sperm Analysis. Sperm DNA integrity during summer was compared without or after 42 and 84 days antioxidant supplementation, by Terminal deoxynucleotidyl transferase dUTP Nick-End Labelling and flow cytometry. Paired T-tests were used to determine significant differences between treatments ($P \leq 0.05$). **Results and Discussion:** Total and progressive motility of sperm did not differ between treatments ($P \geq 0.05$). However, antioxidant supplementation of boars during summer resulted in a 38% and 55% reduction of DNA-damaged spermatozoa after 42 and 84 days treatment respectively ($16.1 \pm 4.8\%$ untreated vs $9.9 \pm 4.5\%$ vs $7.2 \pm 1.6\%$; $P \leq 0.05$). **Conclusions:** Supplementing boars with antioxidants during summer improves boar sperm DNA integrity which could potentially mitigate the negative impact of heat stress on male fertility. Such improvements may also increase downstream fertilisation rates and early embryo survival in the sow.

NOFing to choke about: Swallowing disorders in an older fractured hip population

Rebecca Smith, Emily Beric, Karen Phillips, Tilley Pain, Corey Patterson

The Townsville Hospital, Townsville Hospital and Health Service, Townsville, Queensland

Background: Oropharyngeal dysphagia (OD) is a prevalent condition in the older population, and may lead to complications such as pneumonia, malnutrition and dehydration. This study is an extension of a study completed by Love et al (2013) looking at OD in an elderly population post hip-fracture surgery. Data collected will aim to identify the preoperative, intra-operative and post-operative factors which may predict a change in swallowing function. Early identification and management of OD has the potential to reduce health-care costs and improve patient outcomes. **Method:** This prospective cohort study sourced participants from the general orthopaedic ward at a regional hospital. Participants aged 65 and older were assessed for dysphagia within 72 hours post hip-fracture surgery. Descriptive statistics were used to calculate the incidence and severity of dysphagia, and collate pre-operative and post-operative characteristics of the study cohort. Univariate and multivariate logistic regression analyses were then utilised to describe relationships between OD and explanatory variables, and to predict the presence of post-operative OD. **Results:** One hundred and one participants (female=77), with a mean age of 81.49 (range=65-94) were included. Post-operatively, 31.68% (n=32) of participants were diagnosed with OD. Statistical analysis identified key comorbidities associated with a post-operative diagnosis of OD; including neurological and respiratory issues. **Conclusions:** By identifying predictors