THERAPEUTIC DRUG MONITORING FOR CANCER PATIENTS RECEIVING CHEMOTHERAPY

Madhu Garg1,2, Peter Galetti1,2, Sebastiaan Goulouze1, Philip Clingan4, Marie Ramon3, Jennifer Sakoff1,3, Catherine Johnson1,2, Jennifer Martin2,3, Stephen Ackland1,2,3

1. Medical Oncology, Calvary Mater Newcastle, Waratah, NSW, 2298, Australia
2. Hunter Medical Research Institute (HMRI), Newcastle, NSW, Australia
3. University of Newcastle, University Drive, Callaghan, NSW, 2308, Australia
4. University of Wollongong, NSW, Australia

Background: With many anticancer drugs, both interpatient and intrapatient pharmacokinetic (PK) or pharmacodynamic variability can account for treatment failure or excess toxicity, due to under- or over-dosing. Tailoring drug treatment regimens can provide better outcomes by maximising drug benefit and minimising toxicity, especially in patients with extreme phenotypes such as obesity, advanced age or organ dysfunction. This is specifically so with newer oral therapies which have pharmacokinetics affected by diet in addition to changing PK parameters during treatment.

Aims: To establish Therapeutic Drug Monitoring (TDM) facility at Calvary Mater Newcastle Hospital.

Methods: HPLC, LC-MS and LC-MS/MS methodologies have been developed to measure various chemotherapy drugs and their metabolites in patient blood samples.

Results: Our validated methodologies can support clinical decisions by measuring several chemotherapy drugs and their metabolites in patient samples: mitotane, fluropirimidines, anthraclycines, taxanes, vincas, uracil, and some tyrosine kinase inhibitors (pazopanib, sunitinib). In adrenocortical cancer, we used TDM of mitotane and metabolites in 15 patients to facilitate achievement of ideal concentrations (14–20 μg/ml) in 11 patients and support dose-reduction in 6 patients with toxic levels. In a phase I study of a new formulation of SFU and folic acid (Deflexifol), PK parameters in each patient are determined to achieve rapid dose escalation. In adjuvant therapy of breast cancer, we will monitor blood levels of anthraclycines, taxanes, SFU and cyclophosphamide to determine if PK differences explain worse outcomes in obese as compared to normal weight women. In renal and other cancers, we will assess PK of pazopanib and sunitinib to identify patients needing dose modification.

Conclusions: TDM is an under-utilised translational tool in cancer chemotherapy, with significant capacity to optimise dosing and explain variability in outcomes. This facility can be adapted for other drugs and clinical situations.

Translational research aspect: This project (T2-T3) leads to clinical decisions for dose adjustments.

EVINCED-PRACTICE GAPS FOR AUSTRALIAN GENERAL PRACTITIONERS (GP) IN ASSISTING PREGNANT WOMEN TO QUIT SMOKE

Gillian Gould1, Billie Bonevski1, Kerrianne Watt2, Laura Twymen3, Marilyn Clarke1, Yvonne Cadet-James2, Lou Atkins4

1. Centre for Translational Neuroscience and Mental Health, University of Newcastle, NSW
2. James Cook University, Townsville, Queensland, Australia
3. Northern NSW Local Health District, Grafton, NSW, Australia
4. University College London, London, UK

Background: Smoking prevalence among Indigenous pregnant women is high at 49%. Evidence-based smoking cessation interventions have not been effectively translated into the maternal Indigenous context.

Aims: To explore GPs’ knowledge, attitudes and practices of managing smoking in pregnant women.

Methods: A random sample of 500 members of the RACGP National Faculty of Aboriginal and Torres Strait Islander Health were invited to an online survey. Inclusion criteria were GPs who consult with pregnant women. The response rate was low at 8% (N=42), however alternative recruitment is ongoing.

Results: One-third of the sample worked in Indigenous organisations; 62% of respondents were women. Most GPs (81%) always asked and gave brief advice about smoking in pregnancy. Less GPs (62%) always provided cessation support, assessed dependence (55%), discussed the psychosocial context of smoking (33%), followed up within 2 weeks (14%); 5% referred to the Quitline. Only 21% always recommended/prescribed nicotine replacement therapy (NRT), despite 93% agreeing that using NRT in pregnancy was safer than smoking; 71% believed NRT was more effective, and 69% were confident to prescribe NRT. More GPs in Indigenous organisations, compared to mainstream, agreed that discussing smoking benefits outweighed risks (57% vs. 41%), were confident to discuss smoking (69% vs. 44%), and were more likely to discuss smoking cessation with pregnant women (65% vs. 51%). Over two-thirds agreed access to NRT should be improved.

Conclusions: Smoking cessation is a high priority for cancer prevention. NRT can be offered to pregnant smokers unable to quit. Low levels of assisted quitting may relate to scarcity of training for pregnancy, and policies governing access. Caution is advised due to small sample size.

Translational research aspect: Training GPs in smoking cessation for pregnant women, and improving NRT access, may progress T2/3 translation of evidence-based methods for smokers in high prevalence groups.