

RGH Pharmacy E-Bulletin

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A joint initiative of the Patient Services Section and the Drug and Therapeutics Information Service of the Pharmacy Department, Repatriation General Hospital, Daw Park, South Australia. The RGH Pharmacy E-Bulletin is distributed in electronic format on a weekly basis, and aims to present concise, factual information on issues of current interest in therapeutics, drug safety and cost-effective use of medications.

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Medicines and heatwaves

Global climate change continues to be the subject of international debate, which has included concern about the health impacts of climate change. Attention has also focused on the impact of 'heat waves' on morbidity and mortality. Over 70,000 additional deaths were recorded in 12 European countries over the summer of 2003 during a prolonged heatwave - after this, a number of related papers were published in medical literature, including some that specifically looked at the potential for increased harm from medicine use during the heatwaves. A number of countries including Australia have since operationalised 'National Heat Wave Plans.' In Australia individual states having developed specific information for to help people to manage in heatwaves, including SA Health's "Extreme Heat – guide to coping and staying healthy in the heat."

Heat-waves which are characterised by long duration and high intensity have the greatest impact on mortality. Older people are more at risk, with medicines an important predisposing factor. A few medicines carry specific warnings as part of the Consumer Medicine Information, which specifically addresses potential adverse effects during a heatwave, (two examples are aripiprazole and oxybutynin) However, generally there is only limited information available on the effects of medicines during 'heatwaves'. Medicines with anticholinergic activity are recognised as potentially problematic due to hypohidrosis (reduced sweating). One study of topiramate use in children (mean age of 33.1 +/- 43.2 months) highlighted that 59 of 151 children (39.1%) experienced potentially serious symptoms related to hypohidrosis. The authors concluded that paediatric patients with epilepsy taking topiramate should be warned to avoid hot and humid environments, especially during the hot summer season.

Heat-related conditions include dehydration, heat cramps, heat syncope, heat exhaustion and heat stroke. Heat stroke is a medical emergency which can result in significant morbidity and mortality. Medicines may increase the risk of heat related conditions through a number of theoretical actions; including:

- dehydration and electrolyte imbalance - including hyponatremia (diuretics, ACEI, ARB, medicines which cause vomiting or diarrhoea);
- impaired sweating (medicines with anticholinergic activity, topiramate);
- reduced thirst (ACEI, ARB, carbamazepine, anti-parkinsonian drugs);
- hypotension and postural hypotension (may increase fainting and falls risk);
- hyperpyrexia associated with serotonin syndrome, neuroleptic malignant syndrome or pyrexia associated with hypersensitivity reactions or 'hot flushes' associated with medicines like anastrozole, tamoxifen, cyproterone, bicalutamide and many others such as SSRIs, triptans, venlafaxine;
- Sedation and increased confusion may affect judgment and perception of heat
- Drug toxicity associated with decreased renal clearance of medicines if dehydration occurs, for example digoxin, lithium or NSAIDs may worsen renal impairment as dehydration progresses.

With an ageing population and increasing prevalence of use of medicines, this is a growing problem. People at risk should be closely monitored and actively asked about symptoms such as decreased sweating. Medicines should be reviewed as a basis to guide advice for individual patients.

It is also important to consider and review storage of medicines in heatwaves to ensure that appropriately arrangements are made to suit the conditions.

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FOR FURTHER INFORMATION – CONTACT THE PHARMACY DEPARTMENT ON 82751763 or email: chris.alderman@rgh.sa.gov.au
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