



# Therapeutics Today

September 2010  
Number 9

**For personal use only. Not to be reproduced without permission of the editor**



**Are all spoons equal?** Spoons, in particular teaspoons, are popular among parents and caregivers when measuring and administering liquid medication to children. A recent study looked at potential inaccuracies in administering liquid medication using spoons (*Int J Clin Pract* 2010; 64: 1185-9). In the first part of the study, the volume capacity of teaspoons (n=71) and tablespoons (n=49) collected from different households in one area of Greece were measured; results showed that the **teaspoon volumes ranged from 2.5 - 7.3ml (mean 4.9ml) while tablespoon volumes ranged from 6.7 - 13.4ml (mean 10.4ml)**. Twenty-five female volunteers were then asked to fill a standardised teaspoon (5ml capacity) with water up to the level that they assumed to represent the full amount. Results showed the fill volume ranged from 3.9 - 4.9ml. A subgroup of 5 volunteers repeated this exercise with liquid paracetamol and only one reached the correct amount - mean fill volume was 4.8ml. The authors noted that, as doses in children need to be adjusted to age and body weight, paediatric populations are considered more vulnerable to dosage errors. This problem is probably greater when parents may underfill the spoon due to fear of spillage when liquid medication is provided to smaller children, who may cry or not stand still. They conclude that teaspoons appear to be unreliable devices and suggest the use of calibrated devices (such as an oral syringe) for both measuring and administering liquid medication. An accompanying editorial (*Int J Clin Pract* 2010; 64: 1185-9) noted that for over 150 years, it has been known that a teaspoon does not have a defined volume. However, **even with the use of a standardised 5ml capacity teaspoon, human perceptions of volume may also affect the amount of liquid administered**. In addition, other factors such as poor reading comprehension or even alterations in packaging over time are linked to dosing inaccuracy. It recommends that prescribers should be aware of the potential problems linked to home dosing of liquid preparations and should ensure the parent/caregiver receives clear instructions for administration to ensure effective delivery of treatment.



**Beware of different brands of warfarin!** There are two brands of warfarin currently licensed and marketed in Ireland - Warfant® and Warfarin Teva®. The Irish Medicines Board (IMB) in its recent Drug Safety newsletter advised healthcare professionals that **warfarin products should be prescribed and dispensed by brand name**. If switching to a different warfarin brand, it is important to ensure that the patient's INR is closely monitored ([www.imb.ie](http://www.imb.ie)). This advisory was issued in response to reports received by the IMB of **potentially clinically significant changes in INR, associated with switches in warfarin brands**. It is important that patient records have details of the brand name prescribed, which should also be recorded in the patient's warfarin book. Patients should also be advised of any change in the brand prescribed or dispensed, and of the requirement for additional INR monitoring in the event of switching. **The key message of the IMB safety update is that careful monitoring of INR is important if switching warfarin brands.**



**Use an OAK to test your patient's knowledge about warfarin.** Warfarin is a highly efficacious anticoagulant but carries a significant risk of adverse events. A recent study used a questionnaire known as the Oral Anticoagulation Knowledge (OAK) test to evaluate patients' awareness of the benefits / risks of warfarin therapy (*Ann Pharmacother* 2010; 44: 1152-7). Hospitalised patients (n=40), recently initiated on warfarin, were randomised to receive either "usual care" (usual counselling session by healthcare professional on the use of warfarin) or "intensive education" (20-minute face-to-face session on all aspects of warfarin use, including uses, dosing, missed doses, drug / dietary interactions, the concept of therapeutic, sub- and supra-therapeutic INR levels, role of monitoring, reversal of warfarin effects, adverse events and emergency care). Participants were then asked to complete the OAK questionnaire at least 24 hours after either session. The intensive education group scored significantly higher on the OAK scale (72%) compared with the usual care group (55%). The authors recommend more formalised warfarin education programmes to optimise patients' awareness of the risks and benefits of warfarin. [Editor's note: the easy-to-use OAK questionnaire is available to download from [www.pharmacy.umaryland.edu/](http://www.pharmacy.umaryland.edu/) -just type OAK into search engine. It should be noted that the term *coumadin* is used interchangeably with warfarin in this US document]



**Update on neuropathic pain.** Chronic pain is a common presenting complaint in clinical practice. Classification of chronic pain falls into 3 main categories: nociceptive pain due to tissue disease or damage (e.g. osteoarthritis); neuropathic pain, caused by somatosensory system disease or damage (e.g. trigeminal neuralgia); or a mixture of both. A recent review looked at the diagnosis, pathophysiology and treatment of neuropathic pain (*Lancet Neurol 2010; 9: 807-19*). Neuropathic pain (NP) may present as a central pain syndrome (e.g. post-stroke pain or multiple sclerosis), a painful peripheral neuropathy (e.g. postherpetic neuralgia), as a generalised/polyneuropathy (e.g. with diabetes mellitus, alcoholism or certain drugs such as cisplatin or isoniazid) or may occur as part of a mixed pain syndrome. Patients with NP typically have

paradoxical sensory perceptions with pain as a dominating positive symptom, in association with areas of abnormal sensation or hypersensitivity in the affected area, adjacent to or combined with skin areas of sensory deficit. **Classical symptoms** include: **allodynia**, defined as pain in response to a non-nociceptive stimulus (such as gentle touch) and **hyperalgesia**, defined as increased pain sensitivity to a nociceptive stimulus (such as pin prick, hot or cold objects). The quality of the pain sensation may also be informative: NP commonly has a burning and/or shooting quality with unusual tingling, crawling or electrical sensations (dysaesthesias). **Clinical history and examination are important in the diagnosis of NP.** In addition to identifying the typical symptoms, examination of the affected site(s) should evaluate response to touch, pinprick, pressure, extremes of temperature and vibration. Standardised screening tools (e.g. NP questionnaire) are available to offer guidance but should not replace clinical judgement. **Causes:** research has shown that damage to the afferent neuronal pathways is necessary for development of NP. However, several mechanisms can lead to NP as a result of nerve injury (including ectopic nerve activity via ion channels, upregulation of receptor proteins and action of proinflammatory cytokines). Moreover, it is not known why only some patients with nerve lesions develop NP; risk factors such as age, gender, level of initial pain, emotional / cognitive problems are thought to be involved.

**Treatment** of NP is challenging; many patients do not experience sufficient pain relief. This may be due to the heterogeneity of NP mechanisms and the frequently co-existing psychological and emotional aspects of chronic pain. In addition to symptomatic treatment of NP, other issues such as sleep disturbance, emotional disturbance / depression, and any identifiable underlying cause (nerve compression, diabetes mellitus) need to be dealt with to improve overall quality of life for the patient.

**Pharmacotherapy:** Much of the clinical trial data relates to patients with specific types of NP (e.g. postherpetic neuralgia, diabetic neuropathy, spinal injury) therefore translation of the efficacy data to other NP syndromes is uncertain. **Gabapentin** and **pregabalin** bind to calcium channels, leading to decreased release of neurotransmitters. In addition to use as anticonvulsants, they are also licensed for the management of peripheral NP (gabapentin and pregabalin) and central NP (pregabalin only). Dosage needs to be adjusted according to renal function. Another anticonvulsant, **carbamazepine**, is also indicated for peripheral NP but its toxicity profile and interaction with many other drugs may make its use problematic, especially in older NP patients. The selective SNRI/SSRI anti-depressants have shown efficacy in painful neuropathies and **duloxetine** is currently licensed for such use in Ireland. Treatment should be discontinued slowly with each of these drugs to avoid CNS adverse effects. Efficacy has been reported for **opioids** in different types of NP syndromes. However, concerns about long-term side effects may limit the use in non-cancer related NP. **Lidocaine 5% patches** have shown efficacy especially in localised peripheral NP such as postherpetic neuralgia. They have the added benefit of minimal systemic absorption (currently unauthorised in Ireland). The review suggests that a pain reduction of at least 30% is generally accepted to be a clinically meaningful result. Therefore, education of patients about NP, the proposed treatment goals and possible drug-related side effects is vital to ensure compliance.