MedicinesUpdateAcute

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Hope all our readers have a very Merry Christmas!

In this issue:

Information included is specific to the use of medicines in the **adult** setting.

Intrathecal/Intraventricular Administration of Medicines

Definitions:

Intrathecal injection: often simply called an "intrathecal" or a "spinal", an intrathecal injection is an injection into the spinal canal (intrathecal space surrounding the spinal cord).

***Intraventricular injection*:** injection of a drug for diffusion throughout the ventricular and subarachnoid space by means of ventricular puncture.

Background

Intrathecal and intraventricular injections are effective and appropriate methods of drug delivery for specific medicines and situations. However, there are serious risks associated in administering medicines via these routes. Some medicines should ***never*** be administered this way. For example there have been a number of cases reported worldwide where the neurotoxic vinca alkaloid, vincristine, has been accidentally administered via the intrathecal route resulting in death or serious paralysis.

Safe administration of medicines via these routes is a high priority for the government and for NHSGGC. Due to the potential risks involved, the NHSGGC intrathecal chemotherapy policy and the non-cytotoxic intrathecal and intraventricular injection policy mandate stringent controls over how intrathecal therapy is prescribed, prepared, stored, delivered and administered. Staff may only be involved with the use of these agents if formally trained and authorised to do so. Such authorisation must be documented in the appropriate intrathecals register and regular competency review is necessary. *The responsibility for policy implementation in each specialty area lies with the Designated Lead Consultant.* Deviations from the stipulated controls can expose adults and children to unacceptable risks, including serious harm and death. Within NHSGGC, a number of incidents and policy lapses have highlighted the need to reinforce some important learning points.

Learning from incidents:

Case Study

Intravenous vincristine was delivered to a theatre where a patient was prepared for the administration of ***intrathecal*** methotrexate. Intrathecal administration of the intravenous vincristine injection would most likely have resulted in death or serious paralysis. The causes of this incident were twofold:

1. Failure to follow strict processes for receipt of intrathecal therapy. Intravenous vincristine was accepted by a member of the medical staff from a member of pharmacy staff. This handover took place in an area where there

was no facility for any of the necessary checks to be carried out and no signature was provided.

2. Poor communication between the two members of staff. Neither the patient's name nor the name of the medicine was discussed during the handover. This meant that only one member of staff was aware that an intrathecal medicine was involved.

In this case, additional process controls by vigilant and well-trained staff ensured patient harm was prevented.

This was a serious incident where catastrophic consequences were only narrowly avoided. A review identified other incidents where NHSGGC intrathecal policies had not been followed. These included incidents where products had to be discarded and/or treatment was delayed due to labelling errors or preparation by an unauthorised staff member. While these incidents did not come as close to potentially harming a patient they nevertheless demonstrated lack of adherence to the controls relating to intrathecal use.

Key Messages

- Be aware of the risks associated with intrathecal and intraventricular injections. Stringent NHSGGC policies apply and *deviations from policy are* ***not*** *acceptable.*
- Only authorised staff may prescribe, prepare, issue or administer intrathecal or intraventricular injections.
- Immediate reporting of all incidents is imperative (via senior manager and Datix).
- ***Remember: Lack of adherence to intrathecal policies could be fatal.***

Renal Drug Handbook and Database

The Renal Drug Handbook (RDH) has for many years been a key clinical resource providing concise summarised advice on drug dosing in renal impairment and renal replacement therapy. The 4th edition is now available and contains over 800 drug monographs.

Alongside the print version of this new edition the publisher has launched the Renal Drug Database (RDD) available at

http://www.renaldrugdatabase.com/

Advantages of this electronic format include:

- Frequent updates
- Easy to search and navigate
- Can be used on PC, tablet or smartphone

The Knowledge Network (TKN) team have negotiated a subscription for NHS Scotland. The TKN team review subscriptions annually based on cost and usage and so to help them assess the level of usage for this resource all individuals who wish to access it should email Ann.Lees@nes.scot.nhs.uk for username and password (no access via Athens password). *Please do not share the password with colleagues - if the perceived usage is low then this could affect whether the resource continues to be available in the future.*

Caution: RDH/RDD is an extremely useful resource, however it should not be used in isolation. The first line information source for dosing in renal patients should always be the manufacturer's Summary of Product Characteristics (SPC) and, where the advice in the SPC & RDH/RDD conflict, careful consideration should be given to the clinical situation.

Clarithromycin Interactions Update

Clarithromycin, a commonly prescribed antibiotic should be prescribed with caution due to its potential to:

1. Inhibit the metabolism of a variety of medicines, leading to increased plasma levels and drug toxicity.
2. Prolong the QT interval and cause life-threatening arrhythmias such as torsades de pointes. This risk is

increased in patients already prescribed a medicine known to prolong the QT interval or with other risk factors e.g. electrolyte imbalance.

Previous bulletins have discussed significant drug interactions involving clarithromycin and drug induced QT prolongation but as incidents are still being reported, particular care should be taken when prescribing clarithromycin.

Examples of incidents:

-Clarithromycin concomitantly prescribed with contra-indicated drugs such as ticagrelor, ivabradine and tacrolimus.

-Clarithromycin interactions were not always managed appropriately e.g. there were instances where simvastatin was not withheld during the antibiotic course.

REMEMBER

Prescribers must be aware of the contra-indications, cautions and interactions with clarithromycin.

Clinical pharmacists do not review every inpatient kardex but are available for specific advice.

Thank you to all staff for reporting incidents. Reporting medication incidents contributes to our understanding of how medicines are used in practice and can help advise on safe prescribing, administration and supply. For example, clarithromycin's role in NHSGGC antimicrobial guidelines was reviewed in response to a previous significant clinical incident and follow-up audit. Reported clarithromycin incidents have also allowed key learning points to be shared with staff via GGC prescribing bulletins.

Discoloured vancomycin vials

It has been reported that some vancomycin vials (manufactured by Wockhardt UK) may contain powder with a pinkish colour. The discolouration is due to a phenomenon in the freeze drying process. As this process does not start at the same time in all vials it can result in differences in the appearance of the final product. Manufacturers have been contacted and confirmed that this does not affect the quality of the product and it can be safely used.

Guideline News (see blog for links)

GGC Guidelines now available on StaffNet
Post-op endophthalmitis
ENT surgical antibiotic prophylaxis
Antibiotic prophylaxis for endoscopic procedure
Management of possible haemorrhagic fever
Parkinson's Disease nil by mouth guidance
Management of suspected clostridium difficile infection
Human albumin use
Immunoglobulin use
Dexmedetomidine guidance for critical care
Learning disability bone health guideline
Management of type 2 diabetes *Refer to StaffNet for additional guidelines on the management of diabetes*

SIGN Clinical Guidelines
Management of asthma (SIGN 141)
NICE Clinical Guidelines*
Multiple sclerosis (CG 186)
Acute heart failure (CG 187)
Gallstone disease (CG 188)
Bipolar disorder (CG 185)

**NICE Guidelines are developed for prescribers in NHS England and Wales and as such may not always follow NHS Scotland prescribing policy e.g. SMC advice. They should always be used in conjunction with relevant NHSGGC Formulary and Clinical Guidelines.*

Vancomycin: Tips for prescribing on the new chart

The new vancomycin prescribing, administration and monitoring chart was rolled out across GGC in August this year. The following practical tips may be useful for prescribers.

Always CIRCLE the prescribed time

The example below shows the risk of missed doses if the time is not circled.

2	Maintenance Dose Prescription (Initial prescribing box)			Administration Record (TWO signatures for administration & record EXACT time(s))			
Drug VANCOMYCIN			Prescribed time(s	Date 6/9/14	Date 7/9/14	Date 8/9/14	
Dose (mg) 750mg	Route IV INFUSION	Date started 6/9/14	Other time 02:00	exact time	exact time	exact time	continue or amend on a separate t
			0800	exact time	exact time	exact time	
Prescriber's signature, PRINTED name & STATUS *I Fixem* (I Fixem, FYI)		See box 3 ☐ Stopped ☐ Date: Initials:	1200				
			1400	exact time 1410 LR AP	exact time 1430 LR AP	exact time 1445 AT BI	
			1800				
			2000	exact time	exact time	exact time	
Additional Instructions			2200				
			Other time :	exact time	exact time	exact time	
Maximum infusion rate = 500 mg/hr							

Hand-written time NOT circled – leading to missed doses

2	Maintenance Dose Prescription (Initial prescribing box)			Administration Record (TWO signatures for administration & record EXACT time(s))			
Drug VANCOMYCIN			Prescribed time(s	Date 6/9/14	Date 7/9/14	Date 8/9/14	
Dose (mg) 750mg	Route IV INFUSION	Date started 6/9/14	Other time 02:00	exact time	exact time 0220 BG AR	exact time 0240 BG AR	continue or amend on a separate t
			0800	exact time	exact time	exact time	
Prescriber's signature, PRINTED name & STATUS *I Fixem* (I Fixem, FYI)		See box 3 ☐ Stopped ☐ Date: Initials:	1200				
			1400	exact time 1410 LR AP	exact time 1430 LR AP	exact time 1445 AT BI	
			1800				
			2000	exact time	exact time	exact time	
Additional Instructions			2200				
			Other time :	exact time	exact time	exact time	
Maximum infusion rate = 500 mg/hr							

Time now circled and all doses administered

Always prescribe the dose times in CHRONOLOGICAL order

In the example below it is unclear whether the 0230 dose was administered on 6/9 or 7/9. Prescribing the 2am dose in the **first** 'other times' box and scoring through the first dose would make the dosage history clearer.

2 Maintenance Dose Prescription (Initial prescribing box)				Administration Record (TWO signatures for administration & record EXACT time(s))		
Drug VANCOMYCIN			Prescribed time(s)	Date 6/9/14	Date	Date
Dose (mg)	Route	Date started	Other time :	exact time	exact time	exact time
750mg	IV INFUSION	3/9/14	0800	exact time	exact time	exact time
Prescriber's signature, PRINTED name & STATUS		See box 3 ☐ Stopped ☐	1200			
I Fixem (I Fixem, FYI)		Date:	1400	exact time 1410 LR AP	exact time	exact time
		Initials:	1800			
			2000	exact time	exact time	exact time
Additional Instructions			2200			
Maximum infusion rate = 500 mg/hr			Other time 02:00	exact time 0230 AT BI	exact time	exact time

continue or amend on a separate b

Dose prescribed AFTER the 2pm dose: unclear *which* day the 02:30 dose was administered

2 Maintenance Dose Prescription (Initial prescribing box)				Administration Record (TWO signatures for administration & record EXACT time(s))		
Drug VANCOMYCIN			Prescribed time(s)	Date 6/9/14	Date	Date
Dose (mg)	Route	Date started	Other time 02:00	exact time	exact time	exact time
750mg	IV INFUSION	3/9/14	0800	exact time	exact time	exact time
Prescriber's signature, PRINTED name & STATUS		See box 3 ☐ Stopped ☐	1200			
I Fixem (I Fixem, FYI)		Date:	1400	exact time	exact time	exact time
		Initials:	1800			
			2000	exact time	exact time	exact time
Additional Instructions			2200			
Maximum infusion rate = 500 mg/hr			Other time :	exact time	exact time	exact time

continue or amend on a separate b

Doses now in chronological order and it is clear when the next dose is due