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CONTENTS

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EDITORIAL

This edition of the Coronial Communiqué describes two cases relevant to safer use of medication. The first case highlights issues about equipment and dose calculations and the second highlights the importance of effective communication.

The coronial investigations provided an opportunity for the hospitals involved to demonstrate how their internal review operates to improve the systems and practices for safer use of medication.

This issue also contains important information on completing medical certificates of causes of death and an update on a case featured in the August-08 issue, "The Perils of Nasogastric Tubes". The case generated an enthusiastic debate from readers who we thank for taking the time to share their thoughts. In response to their feedback we are providing a summary of an update we requested from the specialist services involved.

As this is our final issue for 2008 we wish you all a safe and happy festive season.

COMPLETING MEDICAL CERTIFICATES OF CAUSES OF DEATH

A doctor who was responsible for a person's medical care immediately before or who examines the body of a deceased person after death may complete a death certificate when:

- The death is not a reportable death; and
- The death is not a reviewable death; and
- The doctor has a reasonable degree of confidence or comfort in the diagnosis.

Completing a death certificate can often be a difficult and confusing task with errors frequently made in differentiating antecedent and related conditions. Accuracy and sufficient information in cause of death documentation ensures:

1. Liability and time spent by doctors in responding to queries regarding their death certificates is minimised;.
2. Appropriate communication to family members of specific conditions relating to cause of death occurs;
3. Identification of correct statistical data for investigative or research purposes within the public health sector.

A 30-page booklet provided by the Australian Bureau of Statistics can be accessed free-of-charge at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1205.0.55.0012004?OpenDocument
The booklet is a quick reference guide which lists both common problems and useful information to assist in accurate completion of death certificates.

FEEDBACK

The CLS team is keen to receive feedback about this communication especially in relation to changes in clinical practice.

Please email your comments, questions and suggestions to: **cls@vifm.org**

REPRODUCTION

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Other publications including the Residential Aged Care Coronial Communiqué and WORKWISE can be found on our website at **http://www.vifm.org/n961.html**

COUNTING THE HOURS – A CASE OF PUMP CONFUSION

CASE NUMBER: 0604/06
Case Precis Author: Dr Nicola Cunningham FACEM, CLS

CLINICAL SUMMARY

Ms R was a 94 year old female who was admitted to hospital with severe abdominal pain following a fall at home. The radiological investigations revealed a large retroperitoneal haematoma, resulting in bilateral ureteric obstruction. Ms R developed a fever requiring treatment with intravenous fluids and antibiotics. The next day bilateral ureteric stenting was required to relieve the obstruction.

However, Ms R's condition failed to improve over the following few days and palliative care was instigated after a discussion with her daughter.

A Graseby pump (syringe driver) was borrowed from the oncology ward, and an infusion containing 50mg of morphine and 20mg of midazolam was commenced to optimise the quality of pain management and reduce the disturbances from administering intermittent analgesia.

The order was written up as "48mm/24hr". Approximately 45 minutes later, it was noted that the contents had gone through on a 1 hour pump system instead of over 24 hours. The infusion was ceased and a decision was made not to reverse the drugs. Ms R died approximately 4 hours later.

PATHOLOGY

No autopsy was performed as the deceased was not referred to the coroner at the time and a death certificate had been completed.

On receipt of the death certificate the Registry of Births, Deaths and Marriages referred the matter to the coroner because the death had occurred following a fall.

The pathologist on reviewing the medical records formulated a reasonable cause of death as acute renal failure and sepsis (no organism identified) with ureteric obstruction and a pre-sacral haematoma following a fall (no suspicious circumstances).

INVESTIGATION

The focus of the coronial investigation was to clarify the circumstances regarding the drug administration and use of the Graseby pump to assist in determining whether this may have contributed to death.

The Director of Nursing and Nurse Unit Manager provided statements explaining the procedures for commencing an infusion of morphine and midazolam via a Graseby pump. They also identified the gaps that occurred in this case.

The two major gaps were equipment and dose calculations. There are two types of pumps located on the oncology ward and familiar to oncology nurses. At times, these pumps are requested and used by staff on general wards. The two types of Graseby pumps available are a 24-hour and a 1-hour pump. Both have syringes that are filled to 48mm. However, the 24-hour pump needs to be set at 48mm in order to infuse over 24 hours, whereas the 1-hour pump needs to be set at 2mm to infuse over 24 hours. The pump units measure by length (mm), rather than weight (mg) or volume (ml), was recognised as a potential area of confusion for staff in calculating infusion rates. The hospital provided information which explained that all clinical staff undertake an annual medication training review.

CORONER'S COMMENTS AND FINDINGS

The coroner found that death occurred from cardiorespiratory depression and narcotic overdose. The coroner acknowledged that the hospital had changed clinical practice.

- The Graseby pumps are confined to the oncology ward where staff is familiar with their use, and the usual IMED pumps are used for subcutaneous infusion on other wards.
- All 24-hour pumps were removed and only 1-hour pumps are kept on the wards.
- The policy for Graseby pumps was reviewed to identify and remove any ambiguity in the instructions, and the need to follow the policy reinforced to staff.

READER'S FEEDBACK

CASE NUMBER: 1602/03 CORONIAL COMMUNIQUE AUGUST 2008 VOLUME 6 ISSUE 3.

This case of a child's death caused by charcoal administered through an incorrectly positioned nasogastric tube evoked a number of fervent responses. These ranged from being highly critical of the advice given by the Victorian Poisons Information Centre (VPIC) and the Retrieval Service through to an endorsement of the advice given based on the contemporaneously available clinical information and toxicological databases.
A progress report from the VPIC was requested seeking their response to the coroner's recommendation: "*It would be preferable to have a service whereby a specialist toxicologist was readily available to give advice on treatment tailored to the clinical presentation and particular circumstances confronting the medical practitioner at the "coalface", rather than generic advice. Thus, an urgent, comprehensive, independent review should be undertaken.*"

Mr Jeff Robinson, Manager, VPIC, informed us that following VPIC's relocation from the Royal Children's Hospital to Austin Health in August 2008, it is embedded within the Austin Toxicology Service. In consultation with clinicians from the Austin Toxicology Service, VPIC is introducing a number of clinical governance procedures including:

- The establishment of a dedicated medical toxicologist liaison position;
- A handover procedure for calls that require consultant advice;
- Fortnightly VPIC/Austin Toxicology Service Clinical Governance Meetings;
- Revision of guidelines for VPIC referral to the on-call toxicologist; and
- It is envisaged that a Medical Director of VPIC position will be established in the future.

The co-location of the information service (VPIC) and the clinical service (Austin Toxicology Service) will lead to joint education and research output that will improve the provision of poison information in the State and puts Victoria in line with other jurisdictions.
Please refer to the VPIC website http://www.austin.org.au/poisons for background information.

RECENTLY CLOSED CASES

2040/04 A 43 year old woman attended her local doctor complaining of left-sided breast pain and had a mammogram, which was reported as clear. Over the next 20 months she complained of ongoing breast discomfort and eventually had a second mammogram identifying a breast malignancy. This required surgery and chemotherapy and four years after the diagnosis she died from metastatic complications. An inquest was held to investigate the allegation that with better clinical management the death may have been prevented. Medical witnesses agreed that an earlier diagnosis may have altered prognosis but could not say with any degree of certainty that it would. The coroner was unable to find a probable causal connection between the alleged delay in diagnosis by the local doctor and the death.

2709/05 A 25 year old male who regularly competed in endurance sports was taking part in a bike race. He collapsed to the ground at the top of a climb shortly after the race commenced. After being checked by paramedics, he continued with the race but collapsed again, dying at the scene despite resuscitative efforts. The most likely cause of death following autopsy was exercise-induced ventricular fibrillation with diffuse myocardial ischaemia. It was recommended the family be contacted about screening for possible genetic risks of ischaemic heart disease.

3721/05 A 78 year old female underwent an emergency angioplasty following a myocardial infarction. The procedure was complicated by failure of the guide catheter integrity, with the end of the catheter remaining in the aorta. Several attempts to remove the catheter via the femoral arteries were unsuccessful and definitive surgery was delayed due to renal impairment. The vessels were noted to be markedly atheromatous and tortuous. Post-operatively she developed lower limb ischaemia and further myocardial ischaemia and died despite resuscitative efforts. The failure of the catheter was reported to the manufacturer and the Therapeutic Goods Administration (TGA). The manufacturer reported six failures of this type over three years and due to the extremely low failure rate (0.0004%), together with the fact that there was no evidence to suggest changes would prevent a reoccurrence, the TGA did not recommend further action.

4427/06 An 85 year old female had profound bradycardia whilst in hospital for treatment of a myocardial infarction. She was transferred to the cardiac catheter laboratory for emergency insertion of a temporary pacing wire. Following insertion of the wire she had an episode of asystole. A cardiac tamponade was suspected so a pericardial tap was performed however her condition deteriorated and she died. Autopsy confirmed cause of death as multiorgan failure following cardiac tamponade (after pacemaker wire insertion) and recent myocardial infarction.

KNOWING WHAT THE RIGHT HAND IS DOING

CASE NUMBER: 1387/04
Case Precis Author: Carmel Young RN, CLS

CLINICAL SUMMARY

Ms R, was a 73 year old female with ischaemic heart disease who was admitted to hospital for aortic valve replacement and coronary artery bypass surgery following several recent presentations with chest pain. Significant past medical history included long-term anticoagulation with warfarin for recurrent deep vein thromboses and multiple pulmonary emboli while on anticoagulant therapy. For most of year, prior to this admission Ms R's warfarin dose was between 2.5mg to 3.0mg a day aiming for an International Normalised Ratio (INR) of [INR 3.0-3.8].

Warfarin was ceased prior to surgery. On day-2 post-surgery she developed atrial fibrillation, which was controlled with amiodarone. On day-4 post-surgery the warfarin was recommenced with daily monitoring. On day-7 post-surgery she was discharged home, the INR at that time was [INR 2.3]. She was given a discharge summary that included details of the medication changes and instructions for the local doctor to monitor her anticoagulation therapy. Unfortunately her husband [and carer] was not present on the ward at the time of discharge.

Two days after discharge, Ms R received a home visit from a nurse working in the hospital's "anticoagulant clinic", a service that had monitored Ms R's warfarin therapy over the years. The nurse collected blood for an INR and completed the pathology report card for the dosing doctor information. However, this did not refer to the concurrent use of amiodarone or the details of the recent hospitalization.

The result of the pathology test indicated an INR [4.0]. The dose of warfarin was reduced and another test was arranged to be done in a week.

Six days later Ms R complained of a headache and was taken to hospital, collapsing on arrival. The CT Brain scan revealed an intra-cerebral haemorrhage and pathology test indicated a very elevated INR [INR >8.0]. Palliative care was provided and she died soon after.

PATHOLOGY

Ms R's family objection to autopsy was granted by the coroner. After reviewing the medical records the pathologist gave the cause of death as intracerebral haemorrhage complicating warfarinisation following coronary artery bypass graft surgery and aortic valve replacement.

INVESTIGATION

The case was reported to the State Coroners Office along with a letter from the family. They raised concerns about the medication changes during the initial hospital admission and lack of communication between ward staff and the anticoagulant clinic.

The coronial investigation focused on the process for monitoring the anticoagulation therapy after discharge. The Director of Division of Laboratory Medicine, the cardiothoracic surgeon and local doctor provided statements.

The director affirmed that the discharge summary showed the prescription of amiodarone and this information was not relayed to the anticoagulant clinic. The surgeon described discussing Ms R's discharge plans with the hospital medical officer but not the specific details for follow-up.

The local doctor explained that Ms R preferred to attend the hospital clinic for monitoring of the anticoagulation therapy. He stated he was not aware of the expectation by the hospital that it was his role to manage the anticoagulation therapy after discharge. Also indicating he would have expected a phone call from the hospital to notify him of this decision.

An expert opinion was sought from a haematologist and the case proceeded to an inquest. The expert witness identified three areas of deficient management:

1) The introduction of amiodarone, which potentiated the anticoagulant properties of warfarin and therefore required careful monitoring;

2) The failure to properly initiate post-discharge monitoring; and

3) An inadequate response to pathology test result [INR 4.0], two days after discharge.

CORONER'S COMMENTS AND FINDINGS

The coroner found that the hospital's management of Ms R's warfarin therapy caused and/or contributed to her death by failing to confirm arrangements for dosing and INR monitoring after her discharge.

It was noted that although the deceased may have contributed to the breakdown of communication, the hospital's apparent reliance on patients to advise the dosing service of any changes was *"misplaced, and indeed fraught".*

The coroner commended the hospital on the implementation of comprehensive new procedures since this case, that is: a specific warfarin discharge plan; new national prescribing form which highlighted warfarin dosing in red; a medication risk assessment form addressing issues of adverse interactions; a warfarin information booklet; a clinical alert circulated to clinicians highlighting matters doctors need to consider at discharge; and specific information on the intranet regarding amiodarone interactions.

The coroner commented that the procedures would ensure as far as possible that the monitoring of warfarin was at appropriate intervals and dosing was as responsive as possible to a patient's current condition.

"In short, the left hand should now know what the right hand is doing."

All cases that are discussed in the Coronial Communiqué are public documents. A document becomes public once the coronial investigation process has been completed and the case is closed. We have made every attempt to ensure that individual clinicians and hospitals are de-identified. However, if you would like to examine the case in greater detail, we have also provided the coronial case number.