STATE CORONER VICTORIA

CORONIAL COMMUNIQUE

Clinical Liaison Service – Connecting Clinicians with Coroners

VERITAS OMNIA VINCIT

State Coroner's Office and Victorian Institute of Forensic Medicine (Monash University, Department of Forensic Medicine)

February 2004: Volume 1, Issue 2

Contents

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The inaugural Coronal Communiqué, which was released in December 2003, was a huge success! Special thanks are extended to the Australian Resource Centre for Healthcare Innovations (ARCHI) and to the Victorian Quality Council and Risk Managers who kindly assisted in the electronic distribution of the Communiqué. Also, we extend many thanks to all those who received the Communiqué and forwarded it on to their colleagues. This is one of the most effective methods of dissemination and we encourage recipients of future editions of the Coronial Communiqué to forward it on to other interested health professionals, and to print copies for distribution and display.

What's in this edition?

In this edition of the Coronial Communiqué, we have summaries of three closed Coroner's cases that have been précised by members of the Coroner's Health and Medicial Advisory Committee (CHAMAC - described on page 3 of this edition).

Dr Cathy McAdam, a Consultant Paediatrician, discusses a case of unrecognised haemorrhage causing hypovolemic shock and death in a child who had ear, nose and throat (ENT) surgery.

Dr Ian Carson, a Medical Administrator, describes a case where death was caused by lignocaine toxicity secondary to communication breakdowns.

Dr Craig French, an Intensivist, précised a case where death resulted from a procedural adverse event which may have been avoided if instructions had been followed.

Subscription

The Clinical Liaison Service will publish four issues of the Coronial Communiqué in 2004, and these can easily be electronically distributed to your preferred email address. Best of all, the subscription to this Communiqué is free of charge!

If you are interested in receiving future editions, please email: staceye@vifm.org

DISCLAMER

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 ensure that individual clinicians and hospitals are de-identified, however, we have also provided the coronial case number for each case if our readers should choose to examine the case in greater detail.

Silently bleeding to death

Case Number: 3304/00

Case Précis Author: Dr Cathy McAdam, Consultant Paediatrician

Clinical Summary

An 11 year old female had an adeno-tonsillectomy by cautery for enlarged and infected adenoids and tonsils that were associated with obstructive sleep apnoea.

There were no difficulties during her operation. Over the following two days she developed symptoms of viral gastroenteritis and was therefore kept in hospital for an additional 24 hours until she improved. She was discharged home on oral antibiotics.

Three days after discharge she complained of having "something in her throat". Not long afterwards she had a large haematemesis (vomiting blood) and a melaena (bloody) stool. She collapsed and was taken by ambulance to hospital where she died two days later in the intensive care unit. The pathologic cause of death was cerebral anoxic damage secondary to a post-tonsillectomy haemorrhage.

The Coronial Investigation

The family raised concerns that the child had been discharged prematurely from the hospital. In view of this, the Coroner sought an expert opinion from an independent ENT surgeon. He stated that in his experience, the average length of stay for this procedure was 24 to 48 hours independent of co-existent medical conditions. He said that the complication from which this child died was rare and usually occurred 7 to 14 days post-operation (as occurred in this case).

The Coroner found no evidence to support the parent's concerns about the standard of care given by the hospital.

Important Lessons

The paediatric forensic pathologist commented that blood from a haemorrhage into the back of the throat is often swallowed. This would have accounted for the child's sensation of having something "in her throat". Furthermore, the passage of a melaena stool indicated that there had been a considerable amount of bleeding that had been essentially silent. By the time the parents found their child vomiting blood she was probably in irreversible hypovolaemic shock.

"haemorrhage occurred into the back of the throat and the blood was swallowed"

Dr Peter Campbell, Paediatric Forensic Pathologist

It is perhaps timely to remember that children compensate well from large intravascular losses (whatever the cause) until signs of shock occur. Shock in this setting represented a pre-terminal condition.

Post-Tonsillectomy Haemorrhage

There have been a number of retrospective audits of haemorrhage after tonsillectomy with comparisons made between mechanical and electro-cautery dissection of the tonsils and adenoids. The technique used seemed to influence post-operative analgesic requirements rather than the bleeding rates.

The expert opinion described haemorrhage as a "rare" complication but recent studies indicate the incidence of post-tonsillectomy bleeding to be around 2% to 3% with most occurring more than 24 hours after surgery.

Risk factors for late post-tonsillectomy haemorrhage are increasing age (peak 21 to 30 years), infected tonsils, male gender, and large intra-operative blood loss. Those patients who bleed will usually require blood transfusions or return to theatre for control of bleeding, but very few will die.

Articles of interest

- Evaluation of post tonsillectomy haemorrhage and risk factors. *Otolaryngology-Head and Neck Surgery* 123(3):229-35 Sept 2000
- Post tonsillectomy haemorrhage: an assessment of risk factors. *International J of Otorhinolaryngology* 37(1):35-43 Sept1996
- Postoperative morbidity following paediatric tonsillectomy; a comparison of bipolar diathermy dissection and blunt dissection. *International J of Otorhinolaryngology* 31(1):1-6 Jan 1995
- Post operative bleeding in tonsillectomy patients *ENTechnology* 75(6):373-6 Jun 1996

Editorial

Teams and teamwork in healthcare are increasingly recognised as vital factors for patient safety. The ***Coronial Communiqué*** is an example of teams and teamwork within the Coronial Services Centre and beyond. Our team includes a range of people from coroners, police, and forensic pathologists, clinical experts and administrative staff. Their common aim is to determine the cause and circumstances of death and, importantly, how to save lives.

This edition of the ***Communiqué*** reflects the diversity of people now involved in patient safety, and feedback from the first issue reflects value of this teamwork.

The case "Why Didn't You Hear Me?" (p3) represents how our team extends beyond the hospital doors and why other health services must work more effectively together to integrate the care needs of our patients.

The story, "Silently Bleeding To Death" (p2), demonstrates the value of a "virtual team". This is a team that never actually meet in person but are working towards a common goal. The "virtual team" in this case comprised the clinicians, forensic pathologists and researchers, who each contributed to clarifying the cause and contributing factors in the death of a child.

The final example of teamwork is demonstrated by the contribution of a person who had no previous contact with the Clinical Liaison Service, Peter Murchison, who corrected a factual error we made in the first issue of the ***Communiqué.***

These examples illustrate the importance of looking at healthcare as a team effort, from the clinical teams to the researchers and all the others who contribute to the maintaining the integrity of the health care system.

The Coroner's Health and Medical Advisory Committee

The Coroner's Health and Medical Advisory Committee (CHAMAC) was initiated by the State Coroner, Mr Graeme Johnstone, who was concerned that hospital deaths may be related to recurrent system failures that were not being adequately addressed by the health system.

The aims and objectives of the committee, which meets bimonthly, are to provide a body of experts to:

- advise the coroner
- facilitate liaison with the medical colleges
- assist the colleges in having their fellows provide expert opinion for the coroner
- develop systems to improve health care

CHAMAC consists of representatives from the Victorian branches of the Medical Colleges:

Royal Australian & New Zealand College of Psychiatrists
Professor Graham Burrows
Professor John Tiller

Chief Psychiatrist
Associate Professor Amgad Tanaghow

Royal Australasian College of Physicians
Professor Peter Ebeling

Royal Australasian College of Surgeons
TBA

Royal Australian College of General Practitioners
Dr David Dammery

Australasian College for Emergency Medicine
Dr Adam O'Brien

Royal College of Pathologists of Australasia
Dr Mary Jo Waters

Royal Australasian College of Physicians - Paediatrics and Child Health Division
Dr Catherine McAdam

Royal Australasian College of Medical Administrators
Dr Ian Carson

Joint Faculty of Intensive Care Medicine (ANZCA & RACP)
Dr David Ernest

Australian & New Zealand College of Anaesthetists
Dr Winifred Burnett

Websites of Interest

Victorian Institute of Forensic Medicine
www.vifm.org

The State Coroner's Office
www.coronerscourt.vic.gov.au

Clinical Liaison Service
www.health.vic.gov.au/cls

Australian Resource Centre for Hospital Innovations
www.archi.net.au

Department of Human Services
www.health.vic.gov.au

VMIA 'Lessons from Losses'
www.antbern.webcentral.com.au/healthcare/3riskmgt.htm

Why Didn't You Hear Me?

Case Number: 2998/98
Case Précis Author: Dr I Carson, Medical Administrator

Clinical Summary

An 88 year old female complained of shortness of breath. A MICA (Mobile Intensive Care Ambulance) paramedic assessed her to be in VT (ventricular tachycardia) and gave her a 50mg bolus of lignocaine that was unsuccessful in correcting her arrhythmia. A standard infusion was prepared with 2g of lignocaine being added to 500mL of Hartmann's solution. A syringe pump was used to deliver a second bolus and an infusion. Once a further 25mg bolus of lignocaine had been delivered the line was closed but not detached. There had been no label attached to the flask containing the lignocaine or to the syringe pump.

After arriving at the ED (Emergency Department) the same flask was reconnected to the patient with hospital equipment. Magnesium sulphate was given using the Hartmann's solution as a flush. Shortly afterwards her pulse, blood pressure and conscious level decreased markedly. The infusion was ceased but the patient began to fit. After prolonged resuscitation efforts she regained haemodynamic stability but continued to be drowsy. The patient was admitted to a ward with poor respiratory status and died five hours after admission.

The autopsy cause of death was cardiorespiratory arrest with a potential exacerbating factor of lignocaine toxicity.

The Coronial Investigation

A coronial inquest established that when the magnesium was flushed using the contents of the unlabelled Hartmann's flask it was left fully open for some time afterwards and was only ceased when the MICA paramedic returned to the room and advised staff of the presence of lignocaine in the unlabelled flask.

The paramedic's handover was interrupted by resuscitative procedures. He indicated that he advised hospital staff of the lignocaine in the Hartmann's solution and syringe pump. The hospital staff did not recall being told about the lignocaine in the flask although they were aware of the lignocaine in the pump.

Evidence provided by an expert witness indicated that clinicians usually respond better to visual stimuli than verbal cues during resuscitation and this needs to be considered when establishing communication systems.

It was established that it was standard hospital practice to clearly label and sign for all additives to intravenous solutions.

Coroner's Recommendations

The Metropolitan Ambulance Service (MAS) should include as a *mandatory* requirement in its training the need to label infusions. A supply of properly designed labels was to be available amongst the routinely carried equipment.

Comments

This case illustrated a common situation of an acutely ill patient arriving in a busy ED. The key coronial finding was that communication processes broke down and contributed to a patient's death.

Communication regarding intravenous drug administration must be clear and have appropriate labelling. The recommendation that the MAS commenced labelling in a similar manner to hospitals was a major step in establishing a system wide change to improve patient safety.

Quote

"The full area of ignorance is not mapped: we are at present only exploring its fringes"

J.D. Bernal

If In Doubt, Read The Instructions...

Case Number: 2116/00
Case Précis Author: Dr Craig French, Intensivist

Clinical Summary

A 48 year old female had a prolonged admission to an Intensive Care Unit (ICU) for multi-organ failure following an emergency laparotomy. Discharge to a general ward was planned as her condition was improving other than a persistent fever. As her intravascular dialysis catheter was considered to be a potential source of infection it was replaced over a guide-wire. Approximately seven hours later the patient became hypotensive, requiring vasopressor therapy with the provisional diagnoses including sepsis and pulmonary embolism. Twenty-one hours later it was noted that the catheter tip was lying in the right atrium on a CXR (chest x-ray) performed earlier that day. It was therefore pulled back. The patient's condition continued to deteriorate and she had a cardiac arrest. She died 30 hours after the exchange of the haemodialysis catheter.

The Coronial Investigation

Statements were obtained from the treating medical and nursing staff and expert opinions were obtained from an independent Intensivist and Radiologist.

It was found that the patient died from cardiac tamponade complicating the replacement of a dialysis catheter. Prior to the catheter's exchange all x-rays demonstrated that a central line was in the distal superior vena cava. No routine CXR was performed after the guide-wire catheter exchange. That decision was based on a recently read article that suggested routine CXR's following guide-wire exchange of central venous catheters were not justified. This was contrary to both the hospital's guidelines and the manufacturers recommendation. Two CXR's were taken after the exchange (8 and 20 hours) that showed a new catheter that terminated in the distal right atrium. There was a delay in reviewing and acting on either of these.

The Coroner found the patient's death was potentially preventable and there was failure of hospital personnel to follow both the hospital's and manufacturer's guidelines.

Coroner's Recommendations

1. Hospital procedures ensure that following insertion, manipulation or exchange of a central venous catheter, a CXR or fluoroscopy are routinely performed and reviewed in order to confirm satisfactory tip position.
2. Procedures relating to the checking of x-rays by clinicians exist to ensure that system errors identified in this case are avoided.
3. The Department of Human Services consider a project to analyse the link between iatrogenic injury in the hospital setting and the failure to follow a product manufacturer's instructions, warnings or guidelines

Clinical Context

Cardiac tamponade following central venous catheterisation (CVC) is rare and its precise incidence unknown. Case reports of cardiac tamponade related to CVC first appeared over 30 years ago. Improvements in catheter technology may have reduced the incidence of cardiac tamponade. In the last decade guide-wire exchange of catheters has become accepted practice. Routine CXR's following such exchanges have been challenged in two retrospective studies. In these series no dialysis catheters were exchanged. Dialysis catheters tend to be larger (up to 13.5 French) than central venous catheters (triple lumen 7 French). As a result, they are stiffer and atrial placement may be more likely to cause tamponade. Manufacturers and regulatory bodies warn against atrial and ventricular placement of central venous catheters and advise that x-rays should be performed and reviewed by appropriate personnel to confirm placement above the pericardial reflection in a timely manner.

Frequently asked Question

How does an inquest differ from a Chambers Finding?

Only a small number of investigations by the coroner will require an Inquest. An Inquest is heard in an open and public court by a coroner to examine the evidence relating to a person's death.

Inquests are always held if homicide is suspected, the deceased was "held in care" (e.g. an involuntary psychiatric patient) or the deceased's identity is unknown.

For deaths that have occurred in hospital, the coroner may decide that it is necessary to hold an inquest if the facts about the death are unclear or if there is an issue of public health and safety.

At the completion of an investigation a coroner must make a finding (a report). After a finding has been made a case is then completed (closed).

A coroner will make a finding following an Inquest. Alternatively, the coroner can make a finding without an inquest, which is referred to as a "Chambers Finding". Literally meaning that the Finding is made in the Coroner's Chambers. A Chamber's Finding is made on all the papers[1] that the coroner has relating to the case.

1 This includes autopsy reports, medical records, witness statements, police reports etc.

Correction

It was brought to our attention by Peter Mirtschin (Venom Supplies Pty, Ltd.) that in the first issue of Coronial Communiqué (December), we pictured a Brown Snake, rather than a Tiger Snake (the species that caused the death in the described case). He explains:

"It's a common mistake for people to think that any banded snake is a tiger snake. There are many banded snakes that are indeed not tiger snakes. Also, there are many tiger snakes that are not banded, that is why the VDK (Venom Detection Kit) is a valuable tool for correct identification of the right antivenom to use."

Tell us what your think

The Clinical Liaison Service is keen to receive feedback about the Coronial Communiqué. Please email your comments and questions to: staceye@vifm.org