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CORONIAL COMMUNIQUE

Clinical Liaison Service – Connecting Clinicians with Coroners



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

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Editorial

Welcome to the first issue of the Coronial Communiqué for 2005. This year also marks ten years since the publication of the Quality in Australian Healthcare Study. The last decade has seen substantial changes in the awareness, motivation and knowledge of staff in improving patient safety and this prepares us for even greater improvements in the future.

The challenges to improving patient care are highlighted by the cases reported in this issue.

Beaty's contribution of the case about a young woman who dies from pneumonia (Case No. 2381/01) re-visits the important issue of clinical staff underestimating the severity of disease in a young patient. This issue was evident in Case No 3304/00 where a young child died from haemorrhage post-tonsillectomy (see *Coronial Communiqué February 2004 Vol 2 (1)*). Our tendency to under-estimate the ability of the young patient to compensate for their disease often means that we do not always recognise the severity of the illness.

Case No. 2381/01 also reiterates the need for improved communication between junior medical staff and the supervising senior specialist staff which we have discussed in a case where a patient died from ischaemic bowel, (see *Coronial Communiqué December 2003 Vol 1 (1) Case 2350/01*).

Medication safety is again highlighted in this issue and builds on the information from a previous issue of the *Coronial Communiqué*. In the *August 2004 Vol 2 (3) issue*, Case No. 1364/01 described the death of a patient due to toxic epidermal necrolysis as a result of the administration of carbamazepine to which the patient was known to have an allergy. In this issue, O'Brien's contribution addresses medication usage involving the antipsychotic clozapine (Case No. 1876/03). Kemp & Titchen raise the issue of administering medication via the wrong route (Case No. 1708/01). This case challenges us to consider 'What are the system solutions to the high risk practice of preparing multiple medications, by different routes for multiple patients at the same time?'

Clearly a better understanding of medication safety is required and the Clinical Liaison Service will continue providing this type of information for improving patient safety.

Summaries of recently closed coronial cases have been included at the end of this edition of the Coronial Communiqué. The majority of these are related to mental health patients and are included for completeness despite the Clinical Liaison Service not being funded to review them in detail.

Publication Team

Editor-in-Chief: Dr Adam O'Brien

Consultant Editor: Prof Joseph Ibrahim

Managing Editor: Ms Megan Bohensky

Address: Clinical Liaison Service
Coronial Services Centre
57-83 Kavanagh Street
Southbank, VIC, 3006

Telephone: + 61 3 9684 4357

Free Subscription

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DISCLAIMER

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.

Beware of the 'Well' Young Patient

Case Number: 2381/01

Case Précis Author: Ms Marrianne Beaty

Clinical Summary

A 30 year old woman saw her GP at a private GP Clinic situated on site at a large metropolitan hospital, complaining of chest pain and yellow sputum. The GP saw her and sent her for a "non-urgent chest x-ray (CXR)". The next day, the woman presented at the ED but did not wait as the department was busy. She re-presented in the afternoon. When seen in the ED, her CXR was performed and the results sent to the GP Clinic.

The next day she attended the GP Clinic where she was diagnosed with right lower lobe pneumonia and was noted to be very thin, weighing 35.5kg. She was commenced on oral antibiotics and asked to return the next day for review. The woman did not attend her appointment the next day. The following day (Saturday), the woman's brother found his sister collapsed at home and took her to the GP Clinic with dizziness, vomiting, abdominal pain and diarrhea. The GP transferred her to the ED with advanced pneumonia. In ED she had another CXR, a series of blood tests, IV fluids and IV antibiotics. She was admitted to a general medical ward with pneumonia, low platelets, abnormal electrolytes and dehydration.

The plan was to rehydrate her overnight, correct her electrolyte imbalance and continue IV antibiotics and oxygen therapy. Repeat blood tests were ordered for the next day. The admitting

doctor felt that she was chronically unwell and that admission to ICU was not justified.

The next day (Sunday) the nursing staff called the covering doctor as they were concerned that she had developed haemoptysis. The doctor found the woman to be afebrile and in no respiratory distress and incorrectly presumed the woman would be seen by a more senior doctor that day.

The woman was moved to a single room overnight and observations at 2am were unremarkable. The night nurse noted later that her gown had been soiled. A few hours later the woman was found non-breathing and a Code Blue was called. She was resuscitated and transferred to ICU for mechanical ventilation. The woman died the next day in ICU. The family referred this death to the Coroner.

Coronial Findings

The Coroner felt that there was an underestimation of the seriousness of the patient's condition for which she should have been reviewed by more experienced medical staff and should have been transferred to ICU earlier. The Coroner also felt that there was a lack of instructions for junior medical staff on when to contact senior medical staff and a failure of nursing staff to record observations and document in the medical history.

Recommendations

The Coroner made the following

recommendations:

- That the hospital introduce or have available the "British Thoracic Society Severity Score" for the assessment of the need to transfer patients with pneumonia to ICU;
- That staff receive appropriate training in the use of this tool; and
- That training and regular reinforcement of the content and need for compliance with the hospital protocol for consultation with more senior medical staff.

Hospital's Response

The hospital stated that "this death occurred as a consequence of resource and systems failures". Since then, staffing resources have been increased and amendments have been made to the Resident Medical Officer's Handbook regarding the need to consult senior medical staff. The hospital has also implemented the subsequently published "Pneumonia Severity Index" in the ED as a management tool.

Author's Comments

We need to remember that the young compensate very well and often appear to be less "sick" than they actually are. This can be a trap for inexperienced staff. One cannot stress enough the need for consultation with more senior staff in the interests of patient safety.

Human beings, who are almost unique in having the ability to learn from the experience of others, are also remarkable for their apparent disinclination to do so

- Douglas Adams, Last Chance to See

Different Preparations of the Same Medication

Case Number: 1708/01

Case Précis Authors: C Kemp & T Titchen, Pharmacy, Royal Children's Hospital, Melbourne

Clinical Summary

A 38 year old woman died at a metropolitan private hospital from complications after a medication error.

The woman had a medical history that included quadriplegia, cerebral palsy, and epilepsy for which she took phenytoin syrup. Her presenting problem was a hiatus hernia and intestinal obstruction; she was consequently commenced on intravenous fluids. A jejunostomy was performed about ten days later to facilitate feeding. The woman developed peritonitis and a laparotomy was performed after which she was then cared for in a High Dependency Unit and commenced total parenteral nutrition. Her oral medication orders were changed to intravenous orders. A day earlier, oral phenytoin syrup had been appropriately administered to the woman by a qualified Graduate Nurse, Division 1.

About two weeks later the same nurse was required to administer medications to five patients including the woman on phenytoin. The nurse obtained two intravenous medications and had these checked by a second nurse as required. The nurse then went to the patient's room to obtain phenytoin syrup from the refrigerator where it had been stored. The refrigerator had been removed, so the nurse returned to the medication room, measured 5mL of phenytoin syrup in a cup then drew it into a syringe. The nurse was distracted by other duties before returning to the woman. She administered the phenytoin syrup through the CVC (central venous catheter) line, noting some resistance. The nurse commenced flushing the line, again noting resistance. The patient complained of pain at the injection site, then commenced dry retching before losing consciousness. Other staff attended and commenced resuscitation. The woman could not be revived.

It became apparent that the phenytoin syrup formulated for oral use had inadvertently been given into the CVC line, instead of the injectable phenytoin formulation.

Coronial Investigation

The nurse stated that she believed either form of phenytoin could be given by a CVC line. A statement obtained from the Registrar of the Pharmacy Board of Victoria was that the non-interchangeability of

different forms of the same drug needs to be emphasised in undergraduate nurse training.

Findings & Recommendations

The Coroner found that the woman died from complications of the intravenous injection of the oral formulation of phenytoin, and endorsed the comments from the Pharmacy Board of Victoria.

The Coroner also noted that the hospital had implemented procedural improvements, including colour coding of IV lines and matching of medications, and has an extensive procedure manual in respect of drug administration.

Authors' Comments

A thorough understanding of the reasons oral preparations are unsuitable for injection is an important part of undergraduate nurse training. It is essential to understand the basic differences in medications designed for different routes of administration. It is unusual to inject a solution that is not clear in appearance – this could be a simple safety check taught to nursing students. Another emphasis for education would be to read the medication label carefully. Drugs intended to be administered by injection are typically stated as such on the label.

The use of oral syringes, that are incompatible with IV connections, may help prevent this type of error. They help ensure medications administered via enteral feeding tubes are not inadvertently given intravenously.

The double checking procedure did not protect the patient in this case. If the nurse had intended to give the oral syrup by the IV route all along, a second nurse should have been asked to check the dose.

It is a hazardous practice to prepare medications for several patients at one time. A system improvement would be to prepare and administer medications one patient at a time.

Every effort to reduce distractions and interruptions, particularly during the medication administration process, is important. Raising awareness of staff to the potential dangers of distractions and interruptions is an important medication safety strategy.

Correspondence from a Coronal Communiqué reader:

I have just read the write-up of Case Number 476/03 in the first issue of the Coronal Communiqué. You may be interested to know that the Victorian Drug Usage Advisory Committee maintains a register of Emergency and Life-Saving Drugs, which includes snake antivenoms. It is available at their website: <http://www.vduac.org.au/polproc.htm>

Regards,

Jeff Robinson, Manager, Victorian Poisons Information Centre, Pharmacy Department, Royal Children's Hospital, Melbourne

Website www.rch.org.au/poisons/

Clozapine - Following Drug Manufacturer's Recommendations?

Case Number: 1876/03

Case Précis Author: Dr AJ O'Brien

Clinical summary

A 25 year old male with schizophrenia had limited success with various antipsychotic medications. He agreed to trial clozapine and became unwell following its commencement and died 2½ weeks later. An autopsy found the cause of death to be hypersensitivity myocarditis secondary to clozapine.

Discussions with the deceased and his mother canvassed the benefits of clozapine, side effects, routine monitoring at the Clozapine Clinic, and daily contact by case workers. Despite some persistent misgivings they agreed to it.

Evidence produced included guidelines published by the drug company for commencing clozapine. Despite them, a troponin level was omitted from the pre-testing.

The deceased received daily visits. On the fifth day, he had "...flu-like symptoms..." A review at the Clozapine Clinic two days later noted high heart and respiratory rates which were considered to be normal for him. The clinic doctor was unaware that MIMS referred to precautions indicating that flu-like symptoms, amongst others, necessitated urgent diagnostic evaluation for myocarditis. The clinic doctor believed the deceased was progressing as expected and increased the clozapine dosage.

On the thirteenth day he was reviewed at the Clozapine Clinic. There were no clinical notes made as the doctor was ill and left early. Later, the case manager received concerns from the mother that the deceased was unwell with a fever, so a review by his GP was arranged to exclude agranulocytosis. Despite a normal blood count excluding it, the GP contacted the psychiatry team and was advised to withhold the clozapine. They also found the fever difficult to assess due to the deceased's history of asthma and it was the middle of winter. Further blood tests were taken, including a troponin level, which was elevated at 0.47 (N: <0.03), the significance of which was

not appreciated.

On the day of his death a case worker found him to be febrile with flu-like symptoms and chest tightness. A discussion with the psychiatry registrar resulted in no further action, as it was incorrectly thought that the deceased saw a psychiatrist one day previously.

Coroner's Conclusions

The possible side effects of clozapine, particularly in relation to the development of myocarditis, were not fully appreciated by the treating clinicians.

There was failure to comply with the clozapine guidelines published by the drug company.

There was failure to record adequate notes.

The channels of communication of crucial information between family and the treating clinicians were inadequate.

Recommendations

All psychiatric facilities involved in offering clozapine treatment should be alert to the possible side effects of the drug. They should ensure complete compliance with the drug manufacturers guidelines, particularly in the first weeks of treatment.

Hospital Response

The hospital developed a protocol for commencing clozapine following the death in this case, which emphasised the need for baseline testing and the risk of myocarditis.

Further Reading

Kilian J.G, Kerr K, Celermajer P.S. Myocarditis and Cardiomyopathy associated with Clozapine. The Lancet. Volume 354, Nov 27, 1999

Recently Closed Cases

3125/00: An elderly mental health patient became 'medically' unwell in a psychogeriatric facility. During transfer to an acute hospital he died. Advanced Directives were discussed.

3133/01: A frail elderly patient's NGT was incorrectly placed by nursing staff. The need for NGT's, checking of position, and end-of-life planning were discussed.

322/02: A young schizophrenic died from exsanguination from incised injuries to both wrists. Previously he had had a prolonged inpatient admission, after which he was closely followed with his suicidal behaviour difficult to predict. Recommendations focused on family involvement in decisions.

672/02: A young schizophrenic overdosed and died despite being closely monitored and appearing to be coping.

1035/02: Following a TURP the patient was hypotensive despite non-surgical haemostatic interventions (bladder washouts and balloon traction). He arrested and was resuscitated. Subsequent cystoscopies were unsuccessful at halting the bleeding and he died. Intra-operative blood loss was probably underestimated, and early return to theatre was discussed.

1864/02: An elderly behaviourally difficult male

had an intracranial bleed, fell and died. The facility later incorporated innovative falls reduction practices. Work practices, including meal breaks and supervision, were discussed.

3425/02: As an involuntary inpatient a young schizophrenic had his first seizure and hit his head. He died from a subdural bleed despite neurosurgical intervention.

3716/02: A young schizophrenic on a CTO died of incised injuries to the chest. During numerous risk assessments his suicidal ideation was difficult to assess.

722/03: A young male with depression died after hanging himself. One week previously he had been referred by a private psychiatrist for inpatient admission. This request was not adhered to by a psychiatric nurse. The hospital has ensured that all such referrals are now reviewed by a psychiatric registrar.

727/03: A middle aged Vietnam veteran with post-traumatic stress disorder hung himself while a psychiatric inpatient despite high standard risk assessments.

1014/03: A middle aged female with a history of depression and alcohol abuse hung herself. She had absconded from an ED having been left alone to sober up prior to a formal psychiatric review. The hospital initiated processes to reduce the likelihood of a similar episode.

1439/03: An elderly patient with Down's syndrome choked on a sandwich while her carer was in the next room. Vigilance in supervising such patients was highlighted.

2135/03: A young schizophrenic, while an involuntary inpatient, ran in front of a train and died. He was allowed, against hospital protocol, out of the hospital for an unsupervised walk.

2708/03: A schizophrenic with borderline intellectual disability and obesity had her CTO revoked for non-compliance. Her medications were recommenced and she died four days later. The cause of death was likely to be a combination of cardiomegaly and the effects of appropriately prescribed drugs.

4053/03: A female died from complications of metastatic oesophageal carcinoma. The family were concerned about the overuse of opiates. Although the allegation appeared unlikely, the doses actually given were poorly documented.

4177/03: A male with bipolar affective disorder and substance abuse killed himself by ingesting drugs and drowning himself. During regular reviews he was not considered to be suicidal.

313/04: A young female with personality disorder, eating disorder and substance abuse died from an overdose. Expansion of the Eating Disorder Unit to address the needs of complex patients was recommended.