A Victorian Government initiative

RESIDENTIAL AGED CARE CORONIAL COMMUNIQUÉ

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CONTENTS

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Next Edition: Dec 2008

EDITORIAL

This edition of the Communiqué focuses on the very common and challenging chronic condition of diabetes mellitus. Three cases demonstrate the need for having systematic approaches to managing residents with diabetes mellitus. The cases also demonstrate the nature of emergencies and complications that may occur. Practical information drawn from the experiences of a diabetes educator who successfully implemented changes in residential aged care settings is also provided.

HYPERGLYCAEMIA IS A HIGH RISK FOR ILLNESS

CASE NUMBER 2499/05

Case Precise Author: Amanda Charles RN, (CLS)

CLINICAL SUMMARY

Mrs D was an 80 year old female with diabetes mellitus who had recently been treated at an acute hospital for falls, a urinary tract infection and hyperglycaemia. Two weeks after returning to the RACF she became unwell. Appearing dehydrated, with a decreased conscious state and high blood sugars, Mrs D was transferred to the Emergency Department of another acute public hospital. Hyperglycaemia, hyperosmolar non-ketotic coma, a urinary tract infection and rapid atrial fibrillation were diagnosed and treated.

Her condition continued to deteriorate, developing a vulval swelling due to cellulitis or fasciitis. A CT scan of the pelvis demonstrated extensive fasciitis from the vulva to the anterior abdominal wall requiring urgent surgery for debridement of the necrotic tissue. Despite post-operative management in the Intensive Care Unit she died later that evening.

PATHOLOGY

An inspection and report was completed. The cause of death was 1(a) multi organ failure, 1(b) sepsis and 1(c) necrotizing fasciitis.

INVESTIGATION

An investigation into this case was initiated because of documented concerns from the acute public hospital staff about the care provided to Mrs D at the RACF. Statements were obtained from the hospital staff and the RACF manager. The RACF was asked and responded to questions about the processes in place for: testing and managing high blood sugar readings and recognition and response to acutely unwell patients.

CORONER'S COMMENTS

The Coroner stated that the evidence supports a finding that Mrs D died from natural causes and made no recommendations.

EDITOR'S COMMENTS

Persistent hyperglycaemia increases the risk of infection, dehydration and other metabolic abnormalities potentially leading to life-threatening coma. This case is a reminder that optimal care of persons with diabetes mellitus requires strategies to manage very high and very low blood glucose.

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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: **racc@vifm.org**

UNASCERTAINED: THE MYSTERY OF HYPOGLYCAEMIA

CASE NUMBER 1038/05

Case Precise Author: Carmel Young RN, CCRN (CLS)

CLINICAL SUMMARY

Ms M was an 83 year old female with a past medical history of Parkinson's disease, depression, ischaemic heart disease, and a cardiac pacemaker. She lived in a RACF and required assistance with activities of daily living including administration of medication.

In March 2005, Ms M was found unconscious and was immediately transferred by ambulance to an acute metropolitan hospital. She remained unresponsive and was observed to be profoundly hypoglycaemic with a blood glucose 0.5mmol/L.

A diagnosis of aspiration pneumonia and hypoglycaemia were made and she was admitted to the ward for further treatment and investigation.

Despite extensive investigations, medical staff could not find an explanation for the profoundly low blood glucose. Ms M did not have any further episodes of hypoglycaemia and died a week later.

PATHOLOGY

The cause of death following a full autopsy was 1(a) Unascertained

INVESTIGATION

The investigation was initiated after the hospital medical staff reported the death because the cause of the profound hypoglycaemia was unknown.

To aid the coroner's investigation, a forensic pathologist completed a full autopsy including histology and toxicology. The pathologist reported that the examination did not reveal evidence of any injury or natural disease process that could have contributed to, or led to death, specifically commenting that Ms M "was not known to be diabetic" and "the cause of the hypoglycaemic episode was unclear". Possibilities for hypoglycaemia include injection of insulin or ingestion of oral hypoglycaemic medication. The toxicology tests conducted on ante mortem blood were not consistent with the suggestion of insulin-induced hypoglycaemia. Therefore, the question remained whether Ms M had inadvertently ingested oral hypoglycaemic medication.

A statement from the RACF manager reported Ms M had not inadvertently been given an insulin injection or oral hypoglycaemic medication. The RACF also provided Ms M's medication chart, the report from a pharmacist medication review and the facility medication management policy. The pharmacist had made a recommendation for blood sugar monitoring because Ms M was prescribed Madopar (benserazide hydrochloride and levodopa) for Parkinson's disease.

CORONER'S COMMENTS

The Coroner noted that the pharmacist's recommendation had not been followed ..."significantly, the records provided by the nursing home contained no evidence of blood sugar monitoring. Had this monitoring taken place, it might have shed light on the cause of the hypoglycaemic episode which led to Ms M's altered state of consciousness and ultimately to her death."

The coroner made no recommendations.

AUTHOR'S COMMENTS

This case illustrates the legal and pathology boundaries for the investigation of death. It also reminds us of the importance of documentation and ensuring that we respond to clinical advice provided.

RESOURCES

The following links have an extensive and useful range of information.

Diabetes Australia
http://www.diabetesaustralia.com.au/

Diabetes Australia, Victoria
http://www.dav.org.au/

Dietitians Association of Australia
http://www.daa.asn.au/

Australian Diabetes Educators Association
http://www.adea.com.au/

Vision Australia Foundation
http://www.visionaustralia.org.au/

International Diabetes Institute
http://www.diabetes.com.au/

HOW LOW IS TOO LOW? HYPOGLYCAEMIA

CASE NUMBER 2906/01

Case Precise Author: JE Ibrahim
Consultant Physician, (CLS)

CLINICAL SUMMARY

Mrs. C was an 82 year old female living in a residential aged care facility (RACF) requiring high level care. Past medical history included insulin requiring diabetes mellitus, a stenosed aortic valve causing severe cardiac failure, renal impairment, and glaucoma. The management of diabetes mellitus was co-ordinated through the same local medical officer for the past three years. Mrs C required twice daily measurement of blood glucose levels at 0730h and 1630h followed by administration of insulin.

One afternoon in 2000, Mrs C was observed to be unresponsive to verbal and painful stimuli. The Registered Nurse (RN) at RACF, using a glucometer, registered a blood glucose level of 2.6mmol/l. Despite this low glucose level, the usual afternoon dosage of insulin was administered. About 10 minutes later another blood glucose test was taken and registered 0.8mmol/l.

As Mrs C's conscious state was not improving, glucagon was administered and the blood glucose rose to 2.6mmol/l over the next 90 minutes. The RN contacted the general practitioner's clinic and spoke to the doctor who was on call to obtain a retrospective medication prescription order.

The on-call general practitioner was not aware of the administration of insulin and asked the RN if the resident was dying and she replied in the affirmative.

Mrs C's family were called and told of her imminent death. Mrs C died soon after. Her usual general practitioner signed a death certificate stating the cause of death as a stroke. This was based on an entry in the Progress Notes which recorded a loss of consciousness at the commencement of the shift and a history of transient ischaemic episodes.

PATHOLOGY

No autopsy was performed because the death was not reported to the Coroner's Office at that time.

INVESTIGATION

The investigation commenced when the deceased's family reported the matter to the Coroner in 2001, after receiving an anonymous letter containing information about the administration of insulin.

An inquest into the case was held in 2002 to determine the cause and circumstances of the death. Evidence was obtained from medical and nursing staff as well as two expert opinions (one requested by the Coroner, the other requested by the RACF). The key findings included that the RN had not documented, nor informed the on-call general practitioner about the administration of insulin.

Mrs C's general practitioner stated "It is bread and butter to a nurse that you don't give insulin to a person with a blood sugar level of less than 3.5." The RN was not aware of this.

There was some debate between the experts as to the likely cause of death and whether the insulin administration was a significant contributor. The RACF conceded the absence of a diabetes mellitus management protocol at the time of Mrs C's death and explained this had been corrected.

CORONER'S COMMENTS

The Coroner stated that the absence of a diabetes mellitus management protocol was "an unsatisfactory state of affairs" and noted the changes implemented by the RACF.

The Coroner noted the different opinions about the cause of death, though it is clear that once Mrs C's condition deteriorated all agreed that administration of intravenous dextrose is the appropriate treatment. The Coroner found that the action of the general practitioners was reasonable based on the information at their disposal. No determination was made about whether the administration of the insulin actually caused the death.

CORONER'S RECOMMENDATIONS

Two recommendations were made. One directed to general practitioners and RACF about the importance of establishing and specifying clear goals for glycaemic control and documenting the acceptable upper and lower blood glucose levels.

The second directed towards the RACF recommended having clear and comprehensive clinical information documented in the resident's file. Specifically, that *"A glance at a chart in a resident's file should be sufficient to apprise any medical or nursing staff of all they need to know about that resident's diabetic status and management."*

MANAGEMENT OF DIABETES MELLITUS IN RESIDENTIAL AGED CARE FACILITIES

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Establishing a comprehensive diabetes mellitus management service requires risk assessment, interested staff, equipment, an education program, policies and practice guidelines.

Risk assessment
This involves assessing requirements of all clinical areas to the standards of practice and the nature of the services provided against the Australian Diabetes Society/Australian Diabetes Educators' Association and Aged Care Standards.

Team
A successful structure requires engaging medical, nursing, pharmacy, allied health and the kitchen staff in each facility and access to a Credentialled Diabetes Educator (CDE-RN). Within each facility, establish and designate a specific nurse to co-ordinate diabetes mellitus management. This position assists to strengthen local knowledge and expertise for improving the management of diabetes throughout the facility.

Equipment
Every RACF should consider when blood glucose meters require upgrading. Ideally, the facility should have only one type of blood glucose meter to simplify procedures and ensure a standard approach. Other benefits of having one supplier are greater opportunities for staff training, ability to request initial and annual central control testing of each meter and easier repair or replacement of equipment.

There should be set times for regular quality control testing of the meters. Ideally, this is done daily, or twice weekly, if the meters are used infrequently. Lancet device review is also essential. Ideally, these are single use, disposable fine gauge lancets that meet infection control standards and for optimal patient comfort.

Education and teaching resources
Establishment of an ongoing staff education program that incorporates the current evidence base for best practice in diabetes management is essential. There should also be documentation in the form of a resource manual, that is readily available for use and updated monthly. A relatively easy task is to develop a library of books and magazines on diabetes.

Teaching should also be developed and initially provided by a CDE-RN working with local dieticians and physiotherapists to present the program. The establishment of learning resources and training helps to raise the awareness of staff about diabetes, prognosis and how poor control contributes to the complications that affect the well being and quality of life of the residents. This knowledge not only aids early recognition of individuals with poor diabetes control but also empowers the staff of the residential care facility to seek help from the appropriate practitioner before emergencies occur.

Policy and Guidelines
Comprehensive diabetes care plan
Another helpful and important tool for diabetes management in RACF is the presence of a comprehensive diabetes care plan individualised for each resident. This plan is implemented on admission to the facility, discussed with all relevant staff and ideally authorised by the attending general practitioner. The plan includes: the risk assessment guidelines and how to put these into practice; short term, long term goals and what action is required in an emergency. It should also contain information about regular blood pressure monitoring, podiatry and annual foot care review and the frequency of laboratory tests (e.g., HbA1c). The day to day management is documented and includes information about what the individual glycaemia ranges should be for the resident, blood glucose testing times and what action is needed when the blood glucose is outside the glycaemia range.

Common emergencies
The most common emergency in older persons with diabetes is hypoglycaemia. It is imperative to have policy, procedures and clinical guidelines that are readily accessed when this occurs. An algorithm explaining the steps for management of 'the patient with decreased conscious state and hypoglycaemia' along with a treatment kit is most useful. One option to consider is to ensure a glucagon order is written in each medication chart of all patients prescribed sulphonylureas or insulin.

Annual screening
There should also be a policy put into practice to ensure annual fasting blood glucose testing on all at-risk patients in accordance with the Diabetes Australia/Australian Diabetes Society guidelines. This recommends screening for detection of diabetes in persons over the age of 55 years.

Conclusion
It is important to establish and document care plans with general practitioners and the RACF team that outline expectations, implementation approaches and the outcomes expected.

References
'Australian Diabetes Educator' magazine of the ADEA, and 'Care of people with Diabetes' A Manual of nursing practice –Trisha Dunning 2nd Edition 2003.

Fiona Kirkland. Improvements in diabetes care for elderly people in care homes. Journal of Diabetes Nursing Vol 4 No.5 2000

Beryl Murphy. Providing a specialist diabetes service in residential care settings. Journal of Diabetes Nursing 10.10 (Nov-Dec 2006) p.389

All cases that are discussed in the Residential Aged Care 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.