Delirium in ICU patients and it’s association with patient factors and outcomes

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Introduction

• Delirium is a severe and frequent problem in the Intensive Care Unit (ICU).

• It has a reported incidence rate of as high as 85% globally (Brummel et al., 2013).

• This figure is likely to increase with the trend for advanced age patients being admitted to ICU.

• Delirium has a negative impact on patient outcomes such as, increased morbidity, length of ICU and hospital stay, costs and mortality (Girard et al., 2010; Pandharipande et al., 2013).
• Global guidelines support standardisation in implementation and management of delirium (Barr et al., 2008; Devlin et al., 2012).

• Studies have argued that routine nurse-led screening using a validated screening tool will allow early detection and timely management that may reduce the severity or duration (Devlin et al., 2012).

• Much has been written about in the last decade about under-recognition in the management of delirium (Shehabi et al., 2012; Mistarz et al., 2011).

• Faced with rising numbers of patients, a different profile as well as illnesses than found in western countries, it was speculated that the incidence of delirium in South Africa might be different from their counterparts in the USA and Europe.
Aim and Objectives

Aim

• To investigate the incidence of delirium in critically ill patients and the relationship between delirium, patient factors and outcomes.

Objectives were to:

• To estimate the incidence of delirium in critically ill patients in the ICU;
• To describe the relationship between delirium and patient factors.
• To identify the demographic profiles of patients >60 years tested positive for delirium.
Methods and Procedures

Ethical consideration
- Approved by the University of the Witwatersrand Ethics Committee (Medical) (Protocol Number M170543).
- Permission to conduct the study was given by the Provincial Health Directorate, the hospital chief directorate, ICU managers, family members and patients after ICU discharge.

Design
- A descriptive, longitudinal design.
- A researcher-developed check-list built on two validated assessment tool: CAM-ICU (Ely et al., 2001) and RASS (Sessler et al., 2001) was administered to a sample of critically ill patients.
Methods and Procedures

Instrument

The CAM-ICU tool was developed from the literature by its authors (Ely et al., 2001). It comprised a two-stepped approach:

- The first step was the assessment of the level of consciousness using the RASS (Sessler et al., 2001) score;
- The next step was the assessment of content of consciousness according to four features from the CAM-ICU.

All patients were assessed by the researcher at least twice per day from admission to discharge or death.

- These data were collected at the same time i.e. in the morning and evening.
Population and Sample

- Sample was not predetermined but drawn from a population of ICU patients over a three-month period;
- Admitted to the General A-ICU and Trauma A-ICU;
- One university-affiliated, 1200 bedded public hospital in Johannesburg.
- Patient age, gender, diagnosis, the reason for admission, the severity of illness was collected during the first 24 hours; ventilator days and use of sedatives and analgesic medication and physical restraint were collected daily from the ICU charts
- Length of stay in ICU was collected to determine patient outcome.
Incidence of delirium

• During the 3 month period there were 522 patients admitted to the two ICUs; 416 were excluded from the study. A total of 82 patients were included in the study.

• Out of a total sample of 82 patients, 39.0% (n = 32) had delirium during their length of stay in ICU.
  • It was noted that the average length of stay in ICU was 6 days.

• Among the 32 patients who had delirium 6 (18.8%) had a ‘death’ outcome out of a total of 218 days.
  • The incidence rate ratio was 2.61 (CI = 0.56-16.10) indicating that delirium was a risk factor for death, however, the results showed no statistical significance (p=0.0916).
Demographics

• The distribution of the demographic data revealed the majority (55.4%; n = 48) of patients were male.

• In this study, most (56.1%; n = 46) of the patients were aged between the ages of 19 to 40 years, followed by 43.9% (n = 36) who were older than 60 years.

• Most (43.9%; n = 26) of the patients had a secondary level education;

• The reason for admission of patients was higher (69.5%; n = 57) for surgery, and 30.5% (n = 25) were medical cases.

• Almost all (98.9%; n = 81) the patients were mechanically ventilated.
• The mean severity of critical illness (SAPS II score) was 36.8 (SD = 14.3) for the total sample (n = 82), and the range was 68 points.

• Related to the length of stay in ICU, the mean length of stay in ICU was 6.12 (SD=4.6). Most (81.7%; n = 67) patients were admitted to ICU for less than seven days.

• Related to patient outcomes, 87.8% (n = 72) of patients survived and were successfully discharged from ICU, whereas 10 (12.2%) of patients died in ICU.
Patient factors

- Out of all 11 patient factors tested in this study, only six factors were statistically (p<0.05) significantly associated with patients having delirium or not having delirium.
  - Included were: medication (p=0.030), physical restraint (p=0.025), acute onset of fluctuating course (<0.001), inattention (p = <0.001), altered level of consciousness (p<0.001) and disorganised thinking (p<0.001) and overall CAM-ICU (p<0.001).

- Out of 15 severity of critical illness (SAPS II) items, only four were statistically (p <0.05) significantly associated with patients having delirium or not having delirium.
  - Included were: CPAP/ PaO2/FiO2 ratio (p=0.018), WBC in 1000µ/L (p=0.046), Glasgow Coma Scale (p<0.001) and type of chronic disease (p=0.011).
Profile of patients > 60 years

• In total there were 14 patients who were older than 60 (> 60) years.
  • Among these patients 6 (42.8%) had delirium.

• The characteristics of patients who were aged >60 years who had delirium were as follows:
  • the majority were male (83.3%), with tertiary education (50.0%), having experienced physical restraint (83.3%), and on midazolam medication (83.3%).

• All patients >60 years who had delirium experienced 3 of 4 delirium features (inattention, altered level of consciousness and disorganised thinking).
Conclusion and Relevance to Practice

• The study found an incidence of delirium in two South African ICUs to be 39%, which is within the mid range of internationally reported rates (16% to 85%) (Brummel et al., 2013; Ouimet et al., 2008).

• These findings suggest patients are at risk for delirium in these ICUs.

• As such, best practice measures to prevent or combat the incidence of delirium should be put in place.

• The study has implications for practice because of the importance of regular screening for delirium and addressing modifiable factors, such as physical restraint and medication titrations.
References


