INCIDENCE AND PREVENTABILITY OF ADVERSE EVENTS REQUIRING INTENSIVE CARE ADMISSION

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CONTENT

Adverse events are unintended patient injuries or complications that arise from healthcare management resulting in death, disability or prolonged hospital stay. Adverse events that require critical care are a considerable financial burden to the healthcare system, but also their global impact on patients and society is probably underestimated.

PROBLEM

Despite the awareness that a substantial number of adverse events are detected among unexpected admissions to intensive care units (ICU), little is known about the epidemiology of these events. Therefore, understanding system specific organisational characteristics of adverse events that require a higher level of care might be important in setting up preventive interventions to reduce unexpected intensive care (re-)admissions.

OBJECTIVES

- To estimate the incidence and preventability of adverse events requiring unplanned ICU (re-)admission.
- To assess the types and consequences of these events including mortality rates, length of ICU stay and direct medical costs.

METHODS

- A multidisciplinary review team was composed
- Search strategy:
  - MEDLINE (from 1966 to present), EMBASE (from 1974 to present) and CENTRAL (version 1 - 2010) were searched for studies reporting on unplanned admissions to ICUs.
  - Several other sources were searched for additional studies.

Inclusion criteria:
- Only quantitative studies that used chart review for the detection of adverse events requiring intensive care admission were considered eligible.
- ICUs were defined as specialized hospital facilities which provide continuous monitoring and intensive care for critically ill patients.

Study selection:
- Two reviewers independently selected the studies, extracted data and assessed the methodological quality of the included studies.
- Any discrepancies between reviewers were resolved by discussion.

Details of the predefined criteria to conduct this systematic review are available in the review protocol: www.joannabriggs.edu.au
- 27 studies were reviewed

RESULTS

Flow Diagram of study selection (based on PRISMA Statement, 2009)

- 1106 records identified through database searching
- 16 additional records identified through other sources
- 1116 records screened
- 1033 records excluded
- 85 full-text articles assessed for eligibility
- 54 full-text articles excluded with reasons:
  - 28 studies did not use chart review
  - 26 studies did not report on AEs requiring ICU admission
- 29 studies included
- 2 studies included after the first published
- 27 studies included in qualitative synthesis

Meta-analysis of the data was not appropriate due to methodological and statistical heterogeneity between studies.
- Subgroup analyses based on population, country and methodological quality of the studies could not clarify heterogeneity. Therefore, results are presented in a descriptive way.
- The percentage of surgical and medical adverse events that required ICU admission ranged from 1.1% to 37.2%.
- ICU readmissions varied from 0% to 18.3%.
- The preventability of the adverse events varied from 17% to 76.5%.
- Consequences of the adverse events included a mean length of ICU stay that ranged from 1.5 days to 10.4 days for the patient’s first stay in ICU.
- Mortality percentages varied between 0% and 58%.

RECOMMENDATIONS

- To decrease adverse events that necessitate ICU admission, several systems are recommended such as early detection of patients with clinical instability on general wards and the implementation of rapid response teams.
- Step-down or intermediate care units could be a useful strategy for patients that require monitoring to avoid ICU readmissions. However the effectiveness of such systems needs to be investigated.

LIMITATIONS

This review only includes studies that used the investigation of adverse events through chart review. Our strict inclusion criteria potentially may have caused us to exclude interesting studies with prospective study designs or studies addressing incident reporting.

LESSONS FOR OTHERS

There is a need for further studies on the detection of adverse events. Planning of future studies should aim to standardize terminology and measures of outcomes (standard taxonomy) and to apply more explicit study designs in order to allow for comparisons across studies. This area of research is important in order to identify and explain failure of healthcare systems leading to patient harm, with the ultimate aim to improve the quality and safety of care.

REFERENCES


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