



Common Medical Errors in the Intensive Care Units

Essay

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in Intensive Care Medicine*

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Abstract

Introduction: The modern intensive care unit (ICU) is the highest mortality unit in any hospital. The ICU is also one of the sites in which medical errors are most likely to occur because of the complexity of care. Since the patient population is severely ill and undergoes multiple complex interventions at the same time, these patients are extremely vulnerable to experiencing adverse outcomes.

Aim of the Work: The objective of the following essay is to highlight the common medical errors in intensive care units, as well as how to avoid these errors.

Summary: Safety is a global concept that encompasses efficiency, security of care, reactivity of caregivers, and satisfaction of patients and relatives. Patient safety has emerged as a major target for healthcare improvement. Quality assurance is a complex task, and patients in the intensive care unit (ICU) are more likely than other hospitalized patients to experience medical errors, due to the complexity of their conditions, need for urgent interventions, and considerable workload fluctuation.

Keywords: Medical Errors, Intensive Care Units

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم العظيم

صدق الله العظيم

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List of Abbreviations

| | |
|--------|--|
| ACEI | Angiotensin converting enzyme inhibitor |
| ADEs | Adverse drug events |
| ADRs | Adverse drug reactions |
| AEs | Adverse events |
| AKI | Acute kidney injury |
| ALI | Acute Lung Injury |
| ARBs | Angiotensin receptor blockers |
| ARDS | Acute respiratory distress syndrome |
| ATN | Acute tubular necrosis |
| AV | Arteriovenous |
| BSI | Blood Stream Infection |
| CASS | Continuous Aspiration of Subglottic Secretions |
| CDC | Centre of Disease Control |
| CMV | Continuous Mechanical ventilation |
| CPOE | Computerized physician order entry |
| CR-BSI | Catheter Related Blood Stream Infection |
| CT | Computerized topography |
| CVC | Central venous catheter |
| CVCI | Cann't Ventilate Cann't Intubate |
| DIT | Drug induced thrombocytopenia |
| DVT | Deep Venous Thrombosis |
| ED | Emergency department |

List of Abbreviations (Cont.)

| | |
|-------|--|
| EGNB | Enteric Gram Negative Bacilli |
| EPC | Error Producing Conditions |
| EPUAP | European Pressure Ulcer Advisory Panel |
| ESBL | Extended Spectrum Betalactamase |
| ETI | Endotracheal intubation |
| ETT | Endotracheal tube |
| FFB | Flexible Fiberoptic Bronchoscopy |
| FV | Femoral vein |
| GI | Gastro Intestinal |
| HIT | Heparin induced thrombocytopenia |
| HIV | Human Immunodeficiency Virus |
| ICP | Intracranial pressure |
| ICU | Intensive care unit |
| IJV | Internal jugular vein |
| IOM | Institute Of Medicine |
| IPC | Intermittent Pneumatic Compression |
| ITT | Intensive insulin therapy |
| IV | Intravenous |
| IVIG | Intra venous immunoglobulin |
| LDUH | Low Dose Unfractionated Heparin |
| LMWH | Low Molecular Weight Heparin |
| MCT | Medium Chain Triglycerides |
| MDR | Multidrug resistant |

List of Abbreviations (Cont.)

| | |
|------|---|
| MRSA | Methicillin Resistant Staphylococcus Aureus |
| MV | Mechanical ventilation |
| NNIS | National Nosocomial Infections Surveillance |
| PA | Pulmonary artery |
| PAC | Pulmonary artery catheter |
| PE | Pulmonary Embolism |
| PEEP | Positive end expiratory pressure |
| PN | Parenteral nutrition |
| PrU | Pressure ulcer |
| REPE | Reexpansion Pulmonary Edema |
| RV | Right ventricle |
| SC | subcutaneous |
| SCV | Subclavian vein |
| SEE | Sentinel Event Evaluation |
| SSI | Surgical Site Infection |
| SUP | Stress Ulcer Prophylaxis |
| TBLB | TracheoBroncheal Lung Biopsy |
| TCY | thrombocytopenia |
| TEF | Tracheoesophageal fistula |
| THR | Total Hip Replacement |
| TI | Tracheal intubation |
| TKR | Total Knee Replacement |
| TPN | Total parenteral nutrition |

List of Abbreviations (Cont.)

| | |
|------|--|
| TR | Tracheostomy |
| TT | Tracheostomy Tube |
| UTI | Urinary Tract Infection |
| VALI | Ventilator-associated lung injury |
| VAP | Ventilator associated pneumonia |
| VIDD | Ventilator Induced Diaphragmatic Dysfunction |
| VILI | Ventilator-induced lung injury |
| VRE | Vancomycin Resistant Enterococci |
| VTE | Venous ThromboEmbolism |

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Introduction

The modern intensive care unit (ICU) is the highest mortality unit in any hospital. The ICU is also one of the sites in which medical errors are most likely to occur because of the complexity of care. Since the patient population is severely ill and undergoes multiple complex interventions at the same time, these patients are extremely vulnerable to experiencing adverse outcomes (*Halpern and Pastores, 2010*).

Sentinel events related to medication, indwelling lines, airway, and equipment failure in ICUs occur with considerable frequency. Although patient safety is recognized as a serious issue in many ICUs, there is an urgent need for development and implementation of strategies for prevention and early detection of errors (*Valentin et al., 2006*).

As errors have become more visible and our patients continue to suffer preventable harm, patients, regulators, accreditators, and caregivers have grown frustrated. While there is broad consensus that faulty systems rather than faulty people cause most errors, healthcare workers struggle to find practical and sound ways to address and mitigate hazards (*Marcucci et al., 2007*).

Aim of the Work

The objective of the following essay is to highlight the common medical errors in intensive care units, as well as how to avoid these errors.

Overview and Definitions

The modern intensive care unit (ICU) is the highest mortality unit in any hospital. There are approximately 4 million ICU admissions per year in the United States with average mortality rate reported ranging from 8-19%, or about 500,000 deaths annually. The ICU is also one of the sites in which medical errors are most likely to occur because of the complexity of care. Since the patient population is severely ill and undergoes multiple complex interventions at the same time, these patients are extremely vulnerable to experiencing adverse outcomes (*Pronovost et al., 2002*).

In addition to its impact on mortality, critical care is a costly component of the national health care budget, with costs estimated to be \$81.7 billion by 2005, accounting for 13.7% of hospital costs, 4.1% of national health expenditures, and 0.66% of the gross domestic product. (*Halpern et al., 2010*)

There is a clear need for ICU physicians to improve their willingness and their ability to disclose errors of care in the ICU and to develop effective guidelines for managing these situations in the best interest of all parties. Clarifying the causes of a disappointing outcome, acknowledging individual and system failures, and appreciating the impact on the patient are all difficult and humbling obligations. (*Boyle et al., 2006*).

The term “error” has been previously defined. The Oxford dictionary of current English (1998) defines it as “mistake” or the condition of being morally “wrong”. Error has also been defined in a wider context as “The failure in a planned action to be completed as intended or the use of a wrong plan to achieve an aim”. Institute of medicine (IOM)