A Systematic Review of Inhalation Injury Associated with Burns in 14 Low- and Middle-Income Countries

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Introduction

• Burn injuries are the fourth most common injury worldwide, and disproportionately affect Low- and Middle-Income Countries (LMICs)1,2
• Inhalation injury is associated with significantly increased morbidity and mortality3

Specific Aims

• Characterize the trends of inhalation injury treatment in 14 LMICs
• Characterize the capacity for treatment of inhalation injury in LMICs
• Gain understanding of the assessment and tracking of inhalation injury in LMICs

Methodology

Publications identified through MEDLINE, Embase, and Cochrane

10,812 articles screened

Disputes resolved by third party reviewer

10,184 articles excluded

628 full-text articles assessed for eligibility

632 articles excluded for: -no mention of inhalation injury -no discussion of treatment or outcomes for inhalation injury

50 articles included

Results

• Only one article studied inhalation injury exclusively.
• Two hospitals cited lack of funding or reliable access to bronchoscopy as a barrier to diagnosis.
• Mortality with inhalation injury ranged from 10.4-100% and was found to increase independently of total body surface area (TBSA).
• Inhalation injury (II) was associated with increased incidence of nosocomial infection (NI) (17-36% rate of NI with II v. 12% rate of NI without II) and multiorgan dysfunction (MODS) (60.4% rate of MODS with II v. 39.6% rate of MODS without II).
• One study attributed intensive care unit bed availability to the mortality of seven patients.

Conclusions

• Inhalation injury is not routinely described in publications about burn injuries in the LMICs studied in this review
• Diagnostic and treatment modalities vary widely between institutions, which may in part be attributed to discrepancies in resources
• Mortality from inhalation injury is high, and cannot be properly addressed without elucidating diagnostic and treatment pitfalls

Limitations

• A limited number of publications on this subject makes study findings hard to meaningfully aggregate

References

1 Peck et al. Burns 2012
2 WHO [CH], 2008