

Systematic review of non-Utstein style drowning terms

Dr Justin Sempstrott^{1,2}, Dr David Slattery¹, Bryan Penalosa¹, Andrew Schmidt^{3,2} and Triza Crittles¹

University of Nevada School of Medicine¹, Lifeguards Without Borders², Nova Southeastern University College of Osteopathic Medicine³

Introduction

The efficient study of drowning is hampered by nomenclature variability among drowning definitions. The 2002 World Congress on Drowning (2002 WCD) established a consensus definition of drowning: 'the process of experiencing respiratory impairment as the result of submersion/immersion in a liquid medium'. The guideline further states that the Utstein style reporting of drowning incidents should be limited to 3 outcomes: morbidity, no morbidity, and mortality. This precludes the use of terms such as silent, wet, dry, near, active, passive, and secondary drowning.

Aims/Objectives

This systematic review identifies the prevalence of Non-Utstein Drowning Term Use (NDTU) for the terms 'wet', 'dry', 'near', 'active', 'passive', and 'secondary' drowning.

Design

IRB approved, systematic review using the Cochrane style.

Data Sources

English-language articles, published between 1 January 2003 and 15 July 2010 using Medline/Pubmed and Web of Science. A panel of emergency physicians and an academic librarian developed the search strategy. The search terms used were: 'drowning', 'dry drowning', 'drowned', 'wet drowning', 'active drowning', 'silent drowning', and 'secondary drowning'.

Data Selection

Using a citation management system, the titles and abstracts of the initial search yield were independently screened for inclusion/exclusion criteria by two authors, JS,DS.

Inclusion criteria

(1) Articles relevant to the public health, impact, surveillance, treatment, pathophysiology, or prevention of drowning, and (2) article titles that contained the terms 'drowning', 'immersion', 'submersion', or water related injury/mortality/safety.

Exclusion criteria

(1) Purely forensic or microbiologic articles (2) opinion/editorial pieces, (3) non-peer reviewed publications, (4) non-human studies, (5) inability to obtain reference.

Data Extraction

Two trained abstractors, JS,BP, independently reviewed the final article cohort using a standardized data tool. These elements were extracted: presence of any non-Utstein drowning terms; presence of a drowning definition; and determination if this definition was WCD-consistent. If available, each journal's impact factor and cited half-life were recorded. Discrepancies for the title/abstract screening were tracked and resolved by consensus.

Outcomes

The primary measure was the prevalence and 95% confidence interval (95%CI) of any NDTU. Secondary measures were the prevalence of the exact Utstein-style drowning definition, the mean impact factor, and median cited half-life of those journals which contained NDTU. Interrater reliability (IRR) was calculated for both the title/abstract screening and for the data extraction using the Kappa statistic.

Results

The initial search yielded 1,148 articles. 119 non-English articles were excluded, 789 did not meet inclusion criteria, and 13 were excluded due to an inability to obtain full text. The final cohort consisted of 227 articles from 131 journals. The IRR for the data extraction by the two reviewers was very high [Kappa (95%CI) = 0.929 (0.88,0.98)]. The prevalence (95%CI) of NDTU was 42.7 (35.6,48.4)%, with most being attributed to the use of 'near' drowning' n=94/97 (97%). The terms 'active', 'passive', and 'silent' drowning were not found in any of the articles. 37/227 (16%) contained an explicit drowning definition, of those, 18/37 48% (95%CI=32,64) used the Utstein-style definition. For articles containing NDTU, the mean (SD) Impact factor for the journal in which they appeared was 2.24 (1.84) [range=0.132-13.66) and the median cited half-life was 6.1 years.

Conclusion

There is high nomenclature variability in the current medical literature with nearly half of the included articles using non-Utstein drowning terminology. The primary NDTU found, 'near drowning', accounted for 97% of NDTU, evidence that it continues to persist in the medical literature despite the WCD 2002, Resuscitation 2003, and WHO 2005 articles strongly suggesting against its use. Nomenclature variability could hamper the study of the prevention, rescue, and treatment of drowning. The journals in which NDTU appear may serve as targets for editorial intervention to achieve uniform reporting of drowning to the scientific and medical communities.

Corresponding Author

Dr Justin Sempsrott
University of Nevada School of Medicine, Emergency Medicine
9312 Sun Rose Ave
Las Vegas NV USA 89134
Email: justin@lifeguardswithoutborders.org
Website: www.lifeguardswithoutborders.org
Telephone: +1 9049624277