Fitting the pieces together B U R N S

Risk factors for and characteristics of dysphagia development in thermal burn injury and/or inhalation injury patients: a systematic review

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Background

- Dysphagia - potential consequence post thermal burn injury[1,2]
- It can complicate survivor recovery by limiting capacity to meet elevated nutrition and hydration needs and increasing aspiration risk and length of time enteral nutrition is required [1,3,4]

Review question/objective

- To examine current evidence for swallowing function outcomes in patients post thermal and/or inhalation burn injury with the aim of describing dysphagia characteristics, identifying optimal assessment methods and predicting recovery patterns

Methods

Inclusion criteria:

Participants:

- Studies that included children (≥ 2) and adults (≥ 18) who have sustained thermal burn injury and/or inhalation injury and admitted to ICU, Burns ICU (BICU), or burns unit
- Exclusion: Studies with patients with significant multi-trauma

Types of intervention(s)/phenomena of interest:

- Objective assessments: FEES, MBS / videofluoroscopy
- Subjective assessments: clinical bedside swallowing evaluation and dysphagia screening assessments either alone or combined
- Studies comparing efficacy of objective vs subjective methods

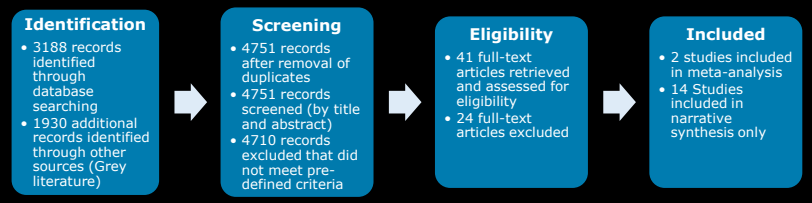
Types of outcomes:

Primary outcome measures:

- Sensation; secretions; aspiration/penetration; pharyngeal residue / pharyngeal pooling / pharyngeal stasis; laryngopharyngeal / laryngotracheal pathology; supraglottic oedema; supraglottic erythema; granulation; vocal fold / arytenoid mobility

Secondary outcome measures:

- Oral phase difficulties; lip closure / anterior spillage; mastication; tongue to palate contact; oral residue / oral stasis; hyolaryngeal excursion / elevation; timing of swallow initiation

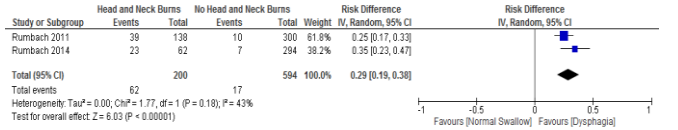


Results

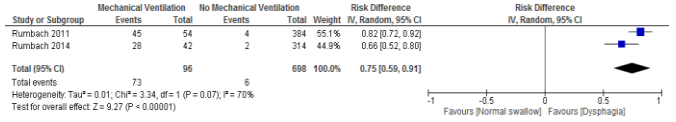
- Included studies represented 3495 patients (range 2 – 983) in total with an age range of 3 - 91 years
- 9 cohort (4 retrospective, 5 prospective) studies [1,2,4,8,9,12-15] and 7 case series[3,5,6,7,10,11,16] (5 retrospective, 2 prospective) were included
- For the included prospective studies 1 reported on assessor blinding (to tracheostomy size only), 2 reported on inter-rater reliability testing for objective and subjective diagnostic assessments used
- All studies included are single centre studies reducing external generalizability, 8 conducted in Australia, 6 in the US, 2 in the UK
- Incidence of dysphagia (from 3 studies reporting dysphagic vs. non-dysphagic total burn injury presentations) was 5.06% (90 dysphagic in total of 1077 patients), whilst 74.5% of dysphagic patients (where reported) had received burns to the head & neck region
- Mean reported duration of intubation for dysphagic patients ranged from 11.2 - 47 days
- Incidence of dysphagia in patients who received tracheostomies was 31.65% (25 dysphagic of 75 total patients); mean duration of tracheostomies reported ranged from 30 - 42.2 days
- Mean time to first oral intake in dysphagic patients ranged from 27.29 - 63 days

Presence of Inhalation Injury and Risk of Dysphagia Development

Presence of Head and Neck Burns and Risk of Dysphagia Development



Need for Mechanical Ventilation and Risk of Dysphagia Development



Conclusions

- Presence of inhalation injury, head & neck burns , the need for mechanical ventilation and/or tracheostomy insertion appears to increase the risk of dysphagia in the burn injury population
- Defining characteristics of post burn dysphagia is compromised by the heterogeneous nature of current research and lack of large studies utilising objective/instrumental examination
- Comparing dysphagia type and severity between studies is confounded due to the variance in diagnostic tools and dysphagia rating scales utilised. Developing standardized terminology and increased use of objective assessment tools in future burn injury research will improve interpretation and application of research findings

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