Prevalence and association of oral candidiasis with dysphagia in individuals with acquired brain injury (ABI)

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Background

1. Poor oral health leads to accumulation of plaque and serves as a reservoir for pathogenic microorganisms[1].
2. Oral Candidiasis (OC) is associated with dysphagia in elderly and head-neck cancer patients[2].
3. OC increases susceptibility to infection in dysphagic ABI individuals[3].

Objectives

1. To estimate the prevalence of oral candidiasis (OC) in individuals with ABI.
2. To find the association between OC and improvement in dysphagia.

Methods

1. 206 ABI individuals with median age of 59 years (18-78).
2. OC was identified by oral assessment and verified by cultivation/microscopy.
3. Oral assessments were done at week1, week 4, week 7 and week 10.
4. Dysphagia improvement was assessed a) Positive change in food consistency b) At least soft food consistency.
5. Individuals with and without OC were compared using multivariable Cox proportional hazards regression.

Results

1. The overall OC prevalence was 32.5% in all individuals and 29.7% in individuals not treated with antifungal agents (Table 1).
2. The OC prevalence was 24.8% after one week of admission and reduced to 10.1% after ten weeks of admission (Table 1).
3. Adjusted hazard ratios for improvement in dysphagia were 0.64-0.77 in OC compared to without OC, though not statistically significant (Fig. 1 and Table 2).

Table 1. Prevalence of oral candidiasis

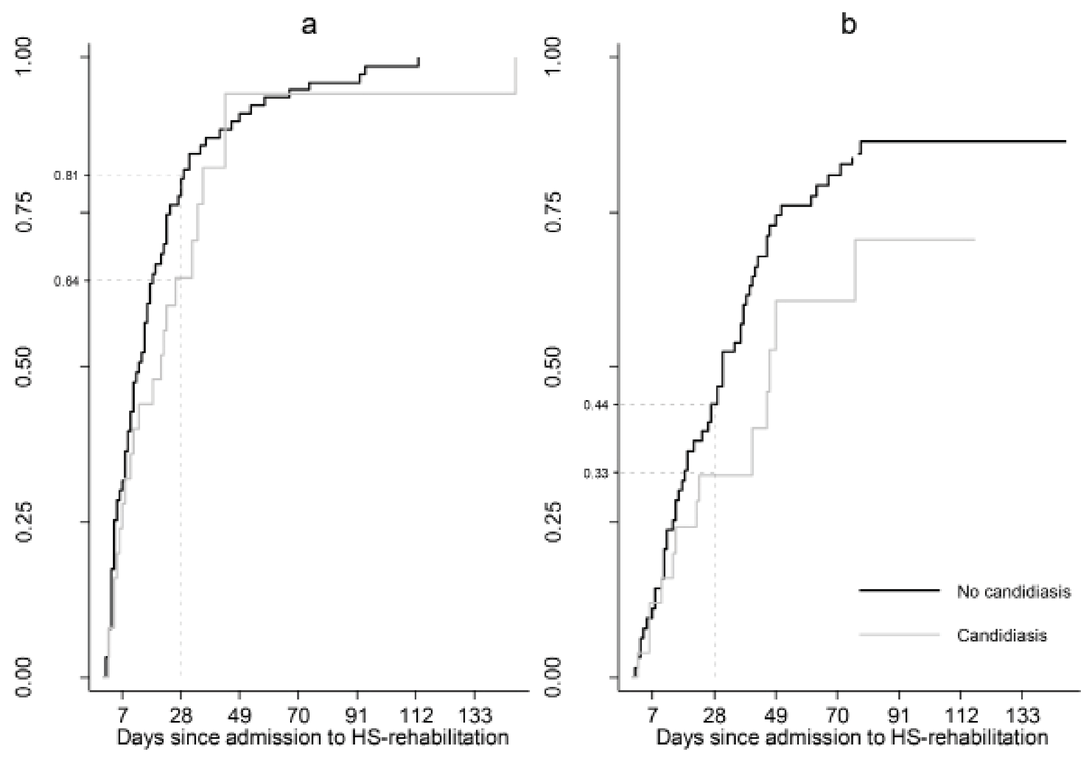
Characteristics	Number of individuals	Oral candidiasis prevalence (95% CI)
Over all prevalence	206	32.5 (26.2-39.4)
Over all prevalence according to brain injury		
Traumatic brain injury	49	18.4 (8.8-32)
Subarachnoid hemmorrhage	29	34.5 (17.9-54.3)
Stroke	81	39.5 (28.8-51)
Anoxic	26	34.6 (17.2-55.7)
Other	21	33.3 (14.6-57)
Over all prevalence for individuals not treated with antifungal agents	145	29.7 (22.4-37.8)
Point prevalence		
Assessment 1 (week 1)	206	24.8 (19-31.2)
Assessment 2 (week 4)	153	15 (9.8-21.7)
Assessment 3 (week 7)	113	15.9 (9.7-24)
Assessment 4 (week 10)	79	10.1 (4.5-19)

Table 2. Association between oral candidiasis and improvement in dysphagia measured as change in food consistency

Food consistency change	Unadjusted HR (95% CI)	Adjusted HR (95% CI)
Positive change in food consistency (n=88)	0.74 (0.45-1.2)	0.64 (0.38-1.08)[a]
Soft food consistency (n=88)	0.61 (0.34-1.09)	0.77 (0.42-1.40)[b]

HR, Hazard ratio; CI, Confidence Interval.
[a] Adjusted for food consistency at admission (No oral feeding/ oral feeding), age (< 58 years/≥59years), FIM admission score (<37/≥37), RLAS admission score (<3/≥4), tracheostomy tube (yes/no, time-dependent), and fever during admission to HS-rehabilitation (yes/no).
[b] Adjusted for food consistency at admission (No oral feeding/ oral feeding), tracheostomy tube (yes/no, time-dependent), transfer to other hospitals (yes/no, time-dependent) and fever during admission to HS-rehabilitation (yes/no).

Figure 1. Kaplan-Meier curves for two measures of improvement in dysphagia in individuals with and without oral candidiasis.



Conclusion

1) Prevalence of OC was high at admission but reduced during rehabilitation.
2) Though non-significant, the negative trend between OC and improvement in dysphagia suggests that OC may delay the rehabilitation of dysphagia.

References:

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