

Identifying some challenges in evidence use and synthesis in Clinical Practice Guidelines through a systematic review of Stroke Clinical Practice Guidelines and evaluation of the evidence underpinning recommendations for the intervention of Thickened Liquids for aspiration subsequent to dysphagia.

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Background

Clinical guidelines (CGs) are decision support tools intended to facilitate evidence-based clinical decision making. Thickened liquids (TL) is an internationally, commonly-used intervention for aspiration subsequent to oropharyngeal dysphagia. Despite widespread use, the evidence supporting TL is limited and conflicting.

Aims

The purpose of this systematic review and narrative synthesis was to evaluate the evidentiary bases of recommendations made by stroke CGs regarding the TL intervention in order to: *identify the recommendations made and evidence used by CGs to support recommendations, identify any methodological challenges, and make suggestions for improvements* in CG development.

Methods

A systematic search for stroke CGs was conducted across a number of databases and guideline websites. CGs were eligible for inclusion if they focused on adult stroke populations, made recommendations regarding the TL intervention and were published between January 2010 - December 2018. Four independent reviewers rated the methodological quality via the AGREE-II. Intervention recommendations were extracted and analysed using the Criteria for Levels of Evidence Reported from the Canadian Stroke Best Practice Recommendations and a framework examining the appropriateness of the evidence used by guidelines to support intervention recommendations.

Results

Thirteen stroke clinical guidelines were included in the review. The methodological quality of included guidelines was variable but generally good-excellent overall according to the AGREE-11 tool. Thirty recommendations regarding the intervention were extracted. The *consensus* across all guidelines was that *the TL intervention should be used* for people with aspiration subsequent to stroke either in isolation or as part of a general dysphagia treatment programme.

Table 1: Levels and types of evidence used to support recommendations

CG	Class of Rec*	LEVEL OF EVIDENCE
Australia 2017	A, B	1b (moderate), Consistency descriptors, 3 (consensus)
Cameroon 2013	A	Other guidelines, Not stated
Canada 2015	A, B	1a (strong), Other guidelines, Not stated
Canada 2018	A, B	1a (strong), Other guidelines
Germany 2013	A, B	3 (Consensus), Not stated
Ireland 2010	A, B	Other guidelines, 3 (Consensus)
Philippines 2011	A	Not stated
Scotland 2010 #118	A	1b (moderate)
Scotland 2010 #119	A, B	1a (strong), 1b (moderate)
UK 2013	A, B	1b (moderate), 3 (Consensus), Other guidelines, Not stated
UK 2016	A, B	Other guidelines, Consistency descriptors, 1b (moderate), 2 (limited) 1a (strong), Other guidelines
USA 2010	A, B	1a (strong), Other guidelines, Not stated
USA 2016	A	1a (strong)

A - Recommendation to use the TL intervention, B - Recommendation relating to the monitoring or implementation

The evidence base pertaining to the TL intervention is less than robust suggesting *a mismatch between evidence and CG recommendations*. While *some guidelines acknowledged the limited evidence base - others did not* or failed to do so overtly. Much of the specific evidence used to scaffold recommendations *did not reflect multiple forms of evidence* such as patient evidence and *did not use recent evidence* where available. Further, a number of guidelines *referenced the recommendations of previous guidelines* to support their recommendations

Table 2: Bases of thickened liquid recommendations

Recommendations	Other CGs	Research Evidence	Clinical opinion	Not stated	Consistency descriptors
Total sources	9	11	4	5	3
% of all sources	28.1%	34.4%	12.5%	15.6%	9.4%

Much of the specific evidence used to scaffold recommendations did not directly support the intervention. Examples are provided in Table 3.

Table 3: Examples of evidence analysis used to support recommendations

STUDY	COMMENT ON EVIDENCE	Examines TL specifically?	Effects of TL isolated?	CGs EMPLOYING THE EVIDENCE
Geeganage et al. 2012	Systematic review of dysphagia interventions in stroke. Based on one RCT - Garon et al. 1997 - evaluating hydration in TL and water protocols. No implications for efficacy of TL can be drawn.	N	N	AUSTRALIA2017, CANADA2018, CANADA 2015, UK2016, USA 2016
Bakhtiyari et al. 2015	Randomized clinical trial. Patients allocated to groups based on the timing of initiation of swallowing therapy after the stroke. A range of interventions used including traditional swallowing therapy.	N	N	AUSTRALIA 2017
Singh & Hamdy 2006	Recommendations based on guideline which used this review. Review concludes that while numerous studies have described the changes in swallowing physiology in people with stroke taking TL, none have shown clinical efficacy.	N	N	CAMEROON 2013
Carnaby et al. 2006	Does not specifically examine TL in isolation but as multicomponent intervention. The effectiveness of TL as a treatment cannot be isolated/supported based on these papers.	Y	N	CANADA2018, CANADA 2015, SCOTLAND2010 #118, UK2013, UK2016

Conclusions

The 13 stroke CGs included in this study were of generally good-excellent quality based on tools examining the development of those guidelines. A *discrepancy was highlighted between quality rating tools for guidelines and the narrative evaluation of the evidence* underpinning guideline recommendations. Despite the limited empirical support for TL, there was CG consensus in recommending it. Further, much of the evidence used to support recommendations was inappropriate suggesting less than satisfactory evidence-based practices in formulating recommendations. CGs may therefore not be the most reliable decision support tools with which to facilitate evidence based clinical decision-making.

Suggestions for CG improvements

FOR GUIDELINE DEVELOPERS

Guideline developers should *make reasonable efforts to employ the best/ most recent evidence* when making recommendations.

CGs should preface intervention-specific recommendations with *clear summaries of the evidence-base*.

Supporting evidence should be specific to the intervention being recommended.

Explicit links between supporting evidence and individual recommendations should be consistently employed.

Clear directions and easy access to all supporting documentation is required.

A broader range of evidence should be considered in formulating recommendations including ethical, contextual and collective patient evidence.

Care should be taken to *ensure that traditional clinical practices are not automatically recommended* or assumed to be best practice in the absence of supporting evidence.

Processes for updating and removal of outdated CGs needs to be explicit and rigorous.

FOR INDIVIDUALS AND ORGANISATIONS EMPLOYING CGS

Individuals, teams and organisations employing CGs should *be aware that recommendations may not be wholly evidence-based and should review the evidence where possible*.

Clinicians may benefit from *training in critical appraisal* in order to evaluate the supporting evidence used by CGs. Investment in clinicians' development of such skills would maximize the applicability of CGs as well as increase the number of clinicians who may, in the future, contribute to CG content themselves.

Clinicians may be better served by *guidelines that target specific interventions* rather than broad-based instruments.