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A systematic review and meta-analysis on the application of thickened liquids to treat adults with neurogenic dysphagia

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ADMINISTRATIVE INFORMATION

Support - This research did not receive funding from any public, commercial, or not-for-profit organizations.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - Shaheen Hamdy is the chief scientific officer and stocks/shares holder of Phagenesis Ltd., a company involved in neuromodulatory dysphagia treatment. Other authors declare that there is no conflict of interest.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 4 January 2025 and was last updated on 4 January 2025.

INTRODUCTION

Review question / Objective How liquid consistency influences swallowing function and physiology in neurogenic dysphagic patients?
P: adult neurogenic dysphagic patients
I: differences in liquid consistency or food texture
C: Thin liquids will be considered the control condition for liquid consistencies.
O: penetration/ aspiration incidence; PAS scores; safe/unsafe swallows; residue; swallowing physiology.

Condition being studied Thin liquids will be considered the control condition for liquid consistencies and thickened liquids will be considered the experimental condition.

METHODS

Participant or population Adult neurogenic dysphagic patients.

Intervention Thickened liquids(use of thin liquid as comparison, either with or without additional dysphagia treatment).

Comparator Thin liquids.

Study designs to be included Randomized controlled trials (RCT), cohort studies, case-control studies, and case series.

Eligibility criteria Written in English, and access to full text.

Information sources Pubmed, Embase via Ovid, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Web of Science, and Cochrane Library, records identified from citation searching.

Main outcome(s) Penetration/aspiration events, Penetration Aspiration Scale (PAS) scores , unsafe swallowing, and residue.

Quality assessment / Risk of bias analysis The Joanna Briggs Institute (JBI) checklists were used to assess the risk of bias of the randomized controlled trials (RCT) and non-RCT (NRCT) studies included in this review. We applied the “Checklist for the Randomized Controlled Trial” to RCT studies and the “Checklist for quasi-experimental studies” to the NRCT studies.

Strategy of data synthesis All statistical analyzes were performed by Review Manager 5.3 software program (RevMan; Cochrane Collaboration, Oxford, UK). Data from thickened liquids were classified as the "experimental" group, while data from thin liquids were classified as the "control" group. Heterogeneity was assessed using the I^2 statistic, with thresholds of 50% (high). Sensitivity analysis was conducted for I^2 >50%, using leave-one-out methods. Random-effects model was used throughout meta-analysis. Statistical significance was set at $p < 0.05$. Odds Ratios were calculated for dichotomous data, and Mean Differences for continuous data.

Subgroup analysis NA.

Sensitivity analysis Sensitivity analysis was conducted for I^2 >50%, using leave-one-out methods.

Country(ies) involved China.

Keywords neurogenic dysphagia; patients; thickened liquid; swallowing.

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