

CADTH RAPID RESPONSE REPORT: REFERENCE LIST

Hypodermoclysis for Frail Patients and Patients in Long Term Care: Clinical Effectiveness, Cost-Effectiveness, and Guidelines

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Research Questions

1. What is the clinical effectiveness of hypodermoclysis in frail patients who are at risk of dehydration or who are dehydrated in any setting?
2. What is the clinical effectiveness of hypodermoclysis in geriatric patients who are at risk of dehydration or who are dehydrated in long term care?
3. What is the cost-effectiveness of hypodermoclysis in frail patients who are at risk of dehydration or who are dehydrated in any setting?
4. What is the cost-effectiveness of hypodermoclysis in geriatric patients who are at risk of dehydration or who are dehydrated in long term care?
5. What are the evidence-based guidelines regarding the use of hypodermoclysis in frail patients or patients in long term care?

Key Findings

One systematic review and one randomized controlled trial were identified regarding the clinical effectiveness of hypodermoclysis in geriatric patients who are at risk of dehydration or who are dehydrated in long term care. No evidence was identified regarding the clinical effectiveness or cost-effectiveness of hypodermoclysis in frail patients who are at risk of dehydration or who are dehydrated in any setting. No evidence was identified regarding the cost-effectiveness of hypodermoclysis in geriatric patients who are at risk of dehydration or who are dehydrated in long term care. No evidence-based guidelines were identified regarding the use of hypodermoclysis in frail patients or patients in long term care.

Methods

A limited literature search was conducted by an information specialist on key resources including Ovid MEDLINE, Ovid EMBASE, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concept was hypodermoclysis. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 01, 2015 and June 29, 2020. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Q1,3,5: Patients in any setting (e.g., acute, long term care, or palliative care) who are frail (as noted by the authors or according to a frailty scale or index) who are at risk of dehydration or who are dehydrated
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	Q2,4-5: Geriatric patients (i.e., age 65 and older) receiving long term care who are at risk of or who are dehydrated
Intervention	Hypodermoclysis (i.e., subcutaneous infusion of fluids, interstitial infusion)
Comparator	IV infusion, oral rehydration, no hypodermoclysis (usual care or a control group)
Outcomes	Q1: Clinical effectiveness (e.g., change in hydration, quality of life and comfort, safety [e.g., adverse events], change in delirium) Q2: Cost-effectiveness (e.g., quality adjusted life years, incremental cost-effectiveness ratios) Q3: Recommendations regarding the use of hypodermoclysis in long term care, the use of hypodermoclysis in frail patients, the recommended location for the subcutaneous line for hypodermoclysis injection, or the recommended infusion method (e.g., gravity, pump) for hypodermoclysis
Study Designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, economic evaluations, evidence-based guidelines

Results

One systematic review¹ and one randomized controlled trial² were identified regarding the clinical effectiveness of hypodermoclysis in geriatric patients who are at risk of dehydration or who are dehydrated in long term care. No evidence was identified regarding the clinical effectiveness of hypodermoclysis in frail patients who are at risk of dehydration or who are dehydrated in any setting. No relevant health technology assessments, non-randomized studies, economic evaluations, or evidence-based guidelines were identified.

References of potential interest that did not meet the inclusion criteria are provided in the appendix.

Health Technology Assessments

No literature identified

Systematic Reviews and Meta-analyses

Geriatric Patients in Long Term Care - Frailty Not Specified

1. Forbat L, Kunicki N, Chapman M, Lovell C. How and why are subcutaneous fluids administered in an advanced illness population: a systematic review. *J Clin Nurs*. 2017 May;26(9-10):1204-1216.
[PubMed: PM27982484](#)

Randomized Controlled Trials

Geriatric Patients in Long Term Care - Frailty Not Specified

2. Esmeray G, Senturan L, Doventas A. A study on efficacy of hydration administered by subcutaneous infusion in geriatric patients. *Turk Geriatri Dergisi*. 2018;21(3):438-445.
http://geriatri.dergisi.org/uploads/pdf/pdf_TJG_1067.pdf

Non-Randomized Studies

No literature identified

Economic Evaluations

No literature identified.

Guidelines and Recommendations

No literature identified.

Appendix — Further Information

Previous CADTH Reports

3. Body site choice in fluid or medication administration using needleless, indwelling, subcutaneous catheters: clinical effectiveness and guidelines. (*CADTH rapid response report: summary of abstracts*). Ottawa (ON): CADTH; 2020 Feb. <https://cadth.ca/body-site-choice-fluid-or-medication-administration-using-needleless-indwelling-subcutaneous>. Accessed 2020 Jun 30
4. Prevention of dehydration in geriatrics in long-term care: guidelines. (*CADTH rapid response report: summary of abstracts*). Ottawa (ON): CADTH; 2017 Jun. <https://cadth.ca/prevention-dehydration-geriatric-patients-long-term-care-guidelines-0>. Accessed 2020 Jun 30
5. Prevention of Dehydration in Geriatric Patients in Long-Term Care: Guidelines. (*CADTH rapid response report: summary of abstracts*). Ottawa (ON): CADTH; 2014. <https://cadth.ca/prevention-dehydration-geriatric-patients-long-term-care-guidelines>. Accessed 2020 Jun 30
6. Volume and Site Preferences for Hypodermoclysis: A Review of Clinical Practice Guidelines. (*CADTH Rapid response report: Health Technology Inquiry Service*). Ottawa (ON): CADTH; 2010. <https://cadth.ca/volume-and-site-preferences-hypodermoclysis-review-clinical-practice-guidelines-0>. Accessed 2020 Jun 30

Systematic Review – Mixed Population

7. Duems-Noriega O, Arino-Blasco S. Subcutaneous fluid and drug delivery: Safe, efficient and inexpensive. *Rev Clin Gerontol*. 2015 25 May;25(2):117-146. [doi:10.1017/S095925981500012X](https://doi.org/10.1017/S095925981500012X)

Non-Randomized Studies - Alternative Population

8. Coelho TA, Wainstein AJA, Drummond-Lage AP. Hypodermoclysis as a Strategy for Patients With End-of-Life Cancer in Home Care Settings. *Am J Hosp Palliat Care*. 2020 Jan 06. [PubMed: PM31902225](https://pubmed.ncbi.nlm.nih.gov/31902225/)
9. Dayan D, Menahem S, Shvartzman P. When they stop drinking-examining end-of-life hydration practices and death rattle occurrence. *Support Care Cancer*. 2020 Apr 23. [PubMed: PM32328774](https://pubmed.ncbi.nlm.nih.gov/32328774/)

Additional References

10. Food Fluid & Nutritional Care (FFNC) Policy Review Group. Food, Fluid and Nutritional Care Policy. (*Clinical Policy*). Dundee (UK): NHS Tayside. 2018. https://www.nhstaysidecdn.scot.nhs.uk/NHSTaysideWeb/idcplg?IdcService=GET_SEC_URE_FILE&Rendition=web&RevisionSelectionMethod=LatestReleased&noSaveAs=1&dDocName=prod_224033. Accessed 2020 Jun 30.
11. Hypodermoclysis (HDC) Administration. (*Corporate Policy & Procedures Manual*). Edmonton (AB): Covenant Health. 2017. <http://extcontent.covenanthealth.ca/Policy/VII-B-315.pdf>. Accessed 2020 Jun 30

12. Best Practices for Nutrition, Food Service and Dining in Long Term Care Home: A Working Paper of the Ontario LTC Action Group. Toronto (ON): Dietitians of Canada. 2019.
<https://www.dietitians.ca/DietitiansOfCanada/media/Documents/Resources/2019-Best-Practices-for-Nutrition,-Food-Service-and-Dining-in-Long-Term-Care-LTC-Homes.pdf>.
Accessed 2020 Jun 30