



TITLE: Topical Nitroglycerin for Peripheral Circulation and Wound Healing in the Elderly: Clinical Effectiveness and Guidelines

DATE: 18 February 2015

RESEARCH QUESTIONS

1. What is the clinical effectiveness of topical nitroglycerin for promoting peripheral circulation and wound healing in elderly patients with peripheral vascular disease?
2. What are the evidence-based guidelines regarding the use of topical nitroglycerin in elderly patients with peripheral vascular disease?

KEY FINDINGS

No relevant literature was identified regarding the clinical effectiveness or guidelines for the use of topical nitroglycerin for promoting peripheral circulation and wound healing in elderly patients with peripheral vascular disease.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2015, Issue 2), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. 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 before February 10, 2015. Internet links were provided, where available.

SELECTION CRITERIA

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

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Table 1: Selection Criteria

Population	Elderly patients with peripheral vascular disease
Intervention	Topical nitroglycerin (e.g., ointment, paste, patches)
Comparator	<ul style="list-style-type: none"> • Placebo or no treatment • No comparator
Outcomes	Q1: Clinical effectiveness: <ul style="list-style-type: none"> • Benefits (e.g., increased circulation, wound healing) • Harms (e.g., hypotension, falls, localized skin sensitivity) Q2: Evidence-based guidelines
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines

RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

No relevant health technology assessment reports, systematic reviews, meta-analyses, randomized controlled trials, or non-randomized studies were identified regarding the clinical effectiveness of topical nitroglycerin for promoting peripheral circulation and wound healing in elderly patients with peripheral vascular disease. In addition, no evidence-based guidelines regarding the use of topical nitroglycerin in elderly patients with peripheral vascular disease were identified.

References of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

No relevant literature was identified regarding the clinical effectiveness or guidelines for the use of topical nitroglycerin for promoting peripheral circulation and wound healing in elderly patients with peripheral vascular disease; therefore, no summary can be provided.

REFERENCES SUMMARIZED

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

No literature identified.

Guidelines and Recommendations

No literature identified.

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APPENDIX – FURTHER INFORMATION:**Systematic Reviews and Meta-analyses – Unclear Population Age**

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[PubMed: PM19445801](#)

Randomized Controlled Trials – Unclear Population Age or Not Limited to Elderly

2. Hummers LK, Dugowson CE, Dechow FJ, Wise RA, Gregory J, Michalek J, et al. A multi-centre, blinded, randomised, placebo-controlled, laboratory-based study of MQX-503, a novel topical gel formulation of nitroglycerine, in patients with Raynaud phenomenon. Ann Rheum Dis. 2013 Dec;72(12):1962-7.
[PubMed: PM23268365](#)
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[PubMed: PM3925656](#)
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[PubMed: PM6119495](#)

Non-Randomized Studies*Unclear Population Age*

8. Anderson ME, Moore TL, Hollis S, Jayson MI, King TA, Herrick AL. Digital vascular response to topical glyceryl trinitrate, as measured by laser Doppler imaging, in primary Raynaud's phenomenon and systemic sclerosis. Rheumatology (Oxford). 2002 Mar;41(3):324-8.
[PubMed: PM11934971](#)

- Fletcher S, Wright M, Wilkinson A, Farr M, Sellars L. Locally applied transdermal nitrate patches for the treatment of ischaemic rest pain. *Int J Clin Pract*. 1997 Jul;51(5):324-5.
[PubMed: PM9489096](#)

Alternate Population

- Kounis NG, Zavras GM, Papadaki PJ, Soufras GD, Poulos EA, Goudevenos J, et al. Allergic reactions to local glyceryl trinitrate administration. *Br J Clin Pract*. 1996 Dec;50(8):437-9.
[PubMed: PM9039714](#)

Case Reports

- Jimenez ER, Whitney-Caglia L. Treatment of chronic lower extremity wound pain with nitroglycerin ointment. *J Wound Ostomy Continence Nurs*. 2012 Nov;39(6):649-52.
[PubMed: PM23138496](#)

Clinical Practice Guideline – Unclear Methodology

- Ontario Wound Care [Internet]. Toronto: Judy Dan Wound Care Centre; 2009. The care of the diabetic foot; 2009 [cited 2015 Feb 17]. Available from:
<http://www.ontariowoundcare.com/footcarephysician.htm>
See: Diabetic Ulcers, #4 and #9

Review Articles

- Herrick AL. Management of Raynaud's phenomenon and digital ischemia. *Curr Rheumatol Rep*. 2013 Jan;15(1):303.
[PubMed: PM23292819](#)
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[PubMed: PM11825312](#)
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[PubMed: PM6407316](#)
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