

Postprandial Hypotension in Older People

Thesis submitted by

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Dedication

I dedicate this thesis to my parents, without whom

I would not be where I am today,

and to my dear husband, Remesh,

whose unwavering support has helped me grow,

day by day.

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Publications and Awards Arising from Thesis

Published articles

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Published abstracts

Nair, S., Gentilcore D., Visvanathan R. (2012). 'The effects of a postprandial blood pressure decline following a glucose drink on gait parameters in healthy older volunteers', *Australasian Journal on Ageing*, volume 31, issue supplement s1, p 2.

Awards

RM Gibson Prize for the best platform presentation by an advanced trainee in geriatric medicine at the 2013 Australia and New Zealand Society for Geriatric Medicine (ANZSGM) Annual Scientific Meeting in Adelaide, South Australia (Appendix 4).

Best oral presentation in the Clinical Research Group at the Basil Hetzel Institute and The Queen Elizabeth Research Day 2013 (Appendix 4).

Best oral presentation in the Clinical Research Group, at the Basil Hetzel Institute and The Queen Elizabeth Research Day 2014 (Appendix 4).

Conference presentations

'The effects of a postprandial blood pressure decline following a glucose drink on gait parameters in healthy older volunteers'. Oral presentation at the Australia and New Zealand Society for Geriatric Medicine (ANZSGM) Annual Scientific Meeting in Sydney, 2012.

'Intermittent walking: A potential treatment strategy for older people with postprandial hypotension'. Oral presentation at the Australia and New Zealand Society for Geriatric Medicine (ANZSGM) Annual Scientific Meeting in Adelaide, South Australia, 2013.

'Is postprandial hypotension a possible contributor to hip fractures in older people' at the Basil Hetzel Institute and The Queen Elizabeth Research Day, 2013.

'The postprandial blood pressure decline following a glucose drink affects gait detrimentally in older people' at the Basil Hetzel Institute and The Queen Elizabeth Research Day, 2014.

Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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Abstract

Postprandial hypotension refers to an excessive decline in blood pressure that occurs following a meal. This occurs commonly among older people and is clinically relevant as it is associated with multiple negative consequences, including falls, which itself has significant detrimental medical, psychological, functional and socio-economic consequences. As the ageing population is increasing, postprandial hypotension is going to be an increasingly prevalent condition. Where possible, it is important to prevent this, in order to maintain an older persons' functional independence. Therefore appropriate management strategies are required to address postprandial hypotension. However, current management strategies are sub-optimal. Non-pharmacological strategies have not been specifically evaluated in older people and available options may not be widely applicable, whereas pharmacological strategies may result in potential adverse effects

- (a) The primary goal of the research reported in this thesis was to determine the effects of low-intensity, intermittent walking on postprandial blood pressure among older people with PPH. The hypothesis was that low-intensity, repeated exercise would attenuate the hypotensive effects of a glucose drink in older people with PPH, and that this effect would be sustained for the duration of the exercise. The results of the investigation provided evidence for the first time that intermittent walking exercise is an effective and practical therapeutic option for older people with PPH.
- (b) There is a gap in our knowledge about the ways in which gait parameters can be influenced by a decline in blood pressure after a meal, as observed in people with PPH. We therefore initiated a study designed to determine whether a postprandial decline in SBP following a 50 g glucose drink would affect gait parameters in older people with and without PPH. We hypothesised that the decline in blood pressure among older people with PPH would detrimentally affect gait parameters compared to the effect on older people without PPH. The results showed that postprandial BP decline does affect gait parameters, an insight which will assist in understanding the relationship between PPH, gait impairments and falls.
- (c) In addition, we sought to determine in older hospitalised patients the prevalence of NOF fractures occurring within two hours of a meal and the factors associated with these fractures, since this is the time when postprandial hypotension occurs. Results indicated that one-fifth of fractures occurred within two hours of a meal. Patients who sustained a NOF fracture within two hours of a meal were more likely to be from residential care, experience symptoms associated with hypotension before a fall and have a history of recurrent falls in the preceding 12 months than patients who fell after more than two hours following a meal.