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No prospective association between hypotension and idiopathic fatigue

William E. Lee*, Matthew Hotopf

Department of Psychological Medicine, Institute of Psychiatry, King's College London, Weston Education Centre, London, UK

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Abstract

Objective: To test the hypothesis that there is a prospective association between constitutional hypotension and new-onset fatigue in a large, representative sample. **Methods:** In this prospective study using a large population-based cohort dataset, the Health and Lifestyle Survey, a representative sample of the population residing in private dwellings in Great Britain in 1984 (n=9003, ages 18–97 years) had their blood pressure measured and were asked about fatigue. Participants reporting fatigue at baseline were excluded. The outcome was fatigue state in 1991. **Results:** No association was shown, unadjusted or adjusted for likely confounders, in the healthy young population [systolic BP: adj. OR (95% CIs)=1.25 (0.90–1.74); diastolic BP: 1.18 (0.84–1.65)] or the whole population [systolic BP: 0.98 (0.77–1.26); diastolic BP: 1.01 (0.79–1.26)]. **Conclusion:** In this British population-based study, hypotension was not a risk factor for incident idiopathic fatigue.

Keywords: Blood pressure; Fatigue; Hypotension; Prospective

Introduction

Low blood pressure in the absence of an acute physical cause, or "constitutional hypotension," is a disputed diagnostic entity, commonly diagnosed in much of continental Europe and French-speaking Canada but absent from Anglophone regions [1]. The suggested symptoms of hypotension include "tiredness, giddiness, a tendency to faint and a feeling of tightness around the heart" [1]. Hypotension has been criticized as a "nondisease"—a diagnostic label attached to a phenomenon not conforming to the pathological model of disease. This follows work showing no blood pressure differences between untreated hypotensives, treated hypotensives, and the general population, implying a valueless label and ineffective treatments [2]. There is no universal definition of hypotension: No particular cut-off value is accepted, there is lack of consensus on whether such a value should be the same or different for different age groups or for men and women, and there is no agreement on whether it is the systolic or the diastolic blood pressure which should be used to define the condition.

Fatigue is one of the most common presenting symptoms in primary care, but it is only relatively rarely associated with organic pathology [3]. Associations between fatigue and hypotension, variously defined, strongest in women under the age of 50, have been demonstrated in cross-sectional studies including large representative samples of the British [4] and Australian [1] populations.

The nature of this relationship remains unaddressed: Does fatigue cause hypotension, hypotension cause fatigue, or is the relationship confounded by other factors? High on the list of such confounders is physical disease: serious physical disease can be expected to affect both blood pressure and fatigue state. This was taken into account in previous analyses with little effect [1,4], as were age, prescription drug use, diagnostic labeling, sex, and socioeconomics. Psychological distress including depression is another alternative explanation for the association. Some studies have found cross-sectional associations between measures of distress with hypotension [5,6], one of which showed an association of

* Corresponding author. Department of Psychological Medicine, Institute of Psychiatry, King's College London, Weston Education Centre, 10 Cutcombe Road, SE5 9RJ London, UK.

E-mail address: w.lee@iop.kcl.ac.uk (W.E. Lee).

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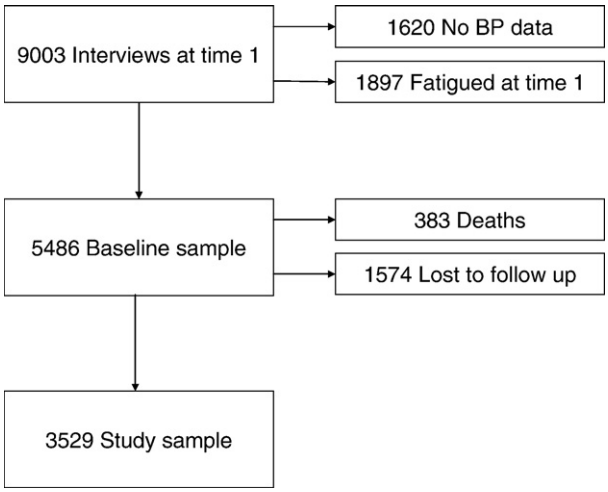

Fig. 1. Flowchart illustrating losses and exclusions in the study.

fatigue with hypotension which was abolished when psychological distress was taken into account. However, this relationship has not been consistently reported [7].

The previous studies have been cross sectional, preventing the direction of associations being explored. Prospective studies are therefore required to establish the direction of causality. We know of two related prospective studies which examine this issue. The first, published in 2000, showed in a population of 1112 subjects from Western France aged 59–71 years that low blood pressure was a risk factor for new depression but that the reverse was not true [8]. The second (2004) paper showed that low blood pressure was a risk factor for new-onset fatigue among the females in a sample of 813 medical students [9].

We aimed to replicate the latter study in a large population-based cohort, representative of the British adult population. We tested the hypothesis that low blood pressure is associated with an increased probability of new-onset fatigue, taking into account potential confounders such as age, sex, physical ill-health, and depression by stratification, restriction, or by the use of appropriate variables in the analysis.

Methods

Sample

The Health and Lifestyle Survey (HALS) is a British population-based health survey carried out initially between August 1984 and July 1985 [10], with follow-up in 1991-1992. The sampling frame was the entire adult population of Great Britain (i.e., England, Scotland, and Wales) living in private households, and the sampling has been described in detail elsewhere [10,11]. Briefly, selection of 198 of the 634 parliamentary constituencies was undertaken randomly, weighted in favor of the more heavily populated constituencies. Two electoral wards were selected randomly from each constituency. A number of addresses were selected from each of these, again weighted for their populations, giving 12,672 addresses altogether. Each address was visited, and one adult, chosen by a predetermined method, was asked to participate. Nine thousand and three interviews were completed. At the

Table 1
Comparison of followed up sample with those not followed up

	Lost	Retained	Total	Statistic	*df*	*P*
Total	1574 (31)	3529 (69)	5103 (100)			
Sex						
Male	761 (48)	1674 (47)	2435 (48)	χ^2=0.36	1	.55
Female	813 (52)	1855 (53)	2668 (52)			
Social class						
Professional	84 (5)	206 (6)	290 (6)	*Z*=−1.94	-	.053
Management	361 (23)	876 (25)	1237 (24)			
Clerical	734 (47)	1705 (48)	2439 (48)			
Semiskilled	247 (16)	540 (15)	787 (15)			
Unskilled	89 (6)	160 (5)	249 (5)			
Unclassifiable	59 (4)	42 (1)	101 (2)			
Systolic BP						
Highest	414 (26)	906 (26)	1320 (26)	*Z*=−0.44	-	.66
High	420 (27)	943 (27)	1363 (27)			
Low	389 (25)	884 (25)	1273 (25)			
Lowest	351 (22)	796 (23)	1147 (22)			
Diastolic BP						
Highest	438 (28)	939 (27)	1377 (27)	*Z*=−1.97	-	.048
High	431 (27)	902 (26)	1333 (26)			
Low	384 (24)	885 (25)	1269 (25)			
Lowest	321 (20)	803 (23)	1124 (22)			
Age, median (IQR)	37 (27–54)	43 (33–58)	42 (31–57)	*Z*=−8.21	-	*P*<.001

Values are shown as *n* (%), unless otherwise specified. This table shows only those individuals who were in the study sample or who were lost to follow up. The individuals who died during the follow-up period are not represented. The test for trend for Social Class excludes those individuals who were deemed unclassifiable. The percentages are column percentages except for the total row, where they are row percentages.