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Review

The evidence base for managing older persons with low back pain

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Abstract

It has been suggested that older persons are less likely to receive optimal care for pain, and a recent population study suggested that management of low back pain (LBP) in primary care differed with older age. Low back pain is the most commonly reported regional pain syndrome, and the objective of the current review was to determine the evidence base for managing LBP in older persons; specifically, to ascertain if randomized controlled trials provide information on the effectiveness of two common non-pharmacological treatments (manual therapy, physical activity/exercise) for LBP amongst older patients. We examine data from trials which contributed to the United Kingdom National Institute for Health and Clinical Excellence (NICE) guidelines on the management of LBP and determine whether the trials had upper age restrictions, their justification and whether any age-specific analyses had been conducted. The present survey included 21 studies of manual therapy and 71 of physical activity/exercise. Many studies had an upper age limit of ≤ 60 years (24% manual therapy, 44% physical activity/exercise) or 61–70 years (33%, 41%) but few gave a rationale for imposing an upper age limit in the trial eligibility criteria (2 out of 17 studies of manual therapy, 4 out of 68 studies of physical activity/exercise). Only 14% of studies of manual therapy and 1% of physical activity/exercise studies provided an age-specific analysis. Upper age limits in back pain trials of manual therapy and physical activity/exercise are common but a justification for these is rarely given. Almost no studies have reported whether effectiveness differs by age.

Keywords

Low back pain, chronic pain, management, aged, guidelines

Introduction

Low back pain (LBP) has an estimated 1-year period prevalence of approximately 40–60% and is the most common musculoskeletal problem reported by patients visiting general practitioners (GPs).^{1,2} There are important individual and social consequences arising from LBP including reduced function and overall poorer quality of life,³ while the economic burden was estimated as £12,300 million to the United Kingdom (direct and indirect costs) in 1998.⁴

The largest proportion of cases presenting to primary care is ‘non-specific’ LBP; a recent study recruiting cases from primary care found that only 10% of cases were attributable to specific causes, such as prolapsed discs, inflammation or fracture.⁵

We have recently shown that the reported management of non-specific LBP in primary care in the UK varies according to age. In a large population

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study, older persons were less likely to receive physiotherapy, exercise or be referred to another specialist. In contrast, they were more likely to receive only a prescription for medication (painkillers alone or with other medication).⁶ The National Institute of Health and Clinical Excellence (NICE) guidelines on the management of non-specific LBP recommend both pharmacological and non-pharmacological approaches to management.⁷ First-line non-pharmacological management includes education and one of the following: an exercise programme, a course of manual therapy or acupuncture. There is no indication in the guidelines that management should differ by age nor is it clear to what extent evidence exists specifically on effective management in older persons.

The aim of this current review is to investigate to what extent randomized controlled trials (RCTs) of LBP include older persons and, second, to what extent trials provide age-specific analysis of the effects of therapy. We consider manual therapy as well as physical activity/exercise since they have a reasonably large evidence base. They have been shown to be effective but previous work has suggested that the likelihood of their use might differ by age.⁶

Methods

Eligible studies

Eligible studies were RCTs of the management of LBP included in the NICE evaluation of evidence on the management of LBP⁷ focusing on trials of either manual therapy or physical activity/exercise.

Data extraction

Eligible papers were identified and the following information extracted: country of conduct, number of randomized patients, therapies studied, age range eligible for inclusion in the study (if there were no given ranges we took the actual reported age range), the rationale given for the age range and whether there was an age-specific analysis of therapy effectiveness.

The data were summarized by using descriptive methods. The rationale given for the study age range was categorized subsequently as follows: safety of intervention, safety of co-intervention, sampling-frame age restriction (e.g. workplace setting), other and not given.

Results

There were 21 eligible studies of manual therapy and 70 of physical activity/exercise. Fourteen RCTs of

manual therapy investigated massage^{8,9} and seven spinal manipulation/mobilization.^{10–16} These treatments were compared with physical therapy/exercises (10 studies), back education (seven studies) or standard medical therapy (six studies). Physical activity/exercise were subclassified into exercise advice (one study), group versus individual exercise (one study) and exercise programmes (68 studies) and compared with a variety of interventions such as education, spinal manipulation/mobilization and standard medical therapy.^{8,10,17–24}

Manual therapy

The median number of randomized patients in studies of manual therapy was 180 (interquartile range (IQR) 100–321). Across the 21 studies, the majority (15 studies, 71%) stated an upper age limit, two (10%) did not and four (19%) had no upper age limit (Table 1). Only three age-restricted studies pre-specified an age range higher than 70 years, seven had an upper age limit between 61 and 70 years, three studies between 51 and 60 years and two studies between 41 and 50 years. Fourteen of 17 studies (82%) gave no reason for selecting the age limit, two studies stated that the intervention was contraindicated at older ages and one study was conducted in an occupational setting (Table 2). Only 2 out of 21 studies (9.5%) provided an age-specific analysis.

Physical activity and exercise

The median number of randomized patients in the 70 studies of physical activity and exercise was much lower (median 91.5, IQR 56.25–148). There were only three trials with no upper age limit and six studies did not state an age range (Table 1). Thus 61 out of 70 (87%) had an upper age limit, only two of them higher than 70 years. In 28 studies the age limit was between

Table 1. Upper age limits of trials of manual therapy and physical activity and exercise.

Upper age limits of RCTs (number of studies, %)		
Included age limit (years)	Manual therapy	Physical activity and exercise
≤ 40	0 (0%)	0 (0%)
41–50	2 (10%)	11 (16%)
51–60	3 (14%)	20 (29%)
61–70	7 (33%)	28 (40%)
≥ 71	3 (14%)	2 (3%)
None	4 (19%)	3 (4%)
Not stated	2 (10%)	6 (9%)
Total	21 (100%)	70 (100%)

Table 2. Rationale provided for upper age limit of back pain RCTs.

Stated rationale for study upper age limit	Type of intervention (number of studies, %)	
	Manual therapy	Physical activity and exercise
Safety contraindication	2 (12%)	1 (1%)
Safety of co-intervention	0 (0%)	2 (3%)
Sampling frame age restricted	1 (6%)	15 (22%)
Other	0 (0%)	2 (3%)
Not given	14 (82%)	47 (70%)
Total	17 (100%)	67 (100%)

61 and 70 years, in 20 studies between 51 and 60 years and in 11 studies between 41 and 50 years. Forty-seven (70%) of age-restricted studies gave no rationale for the limit (Table 2). Fifteen (22%) studies gave a sampling frame which predetermined an age restriction (e.g. occupational settings), one study stated that the intervention was contraindicated and two studies reported concern about the safety of a co-intervention in older persons. Only a single study reported an age-specific analysis.

Discussion

We have shown, for the first time, that most trials of both manual therapy (57%) and physical activity and exercise (85%) have an upper age limit of 70 years or less and very few studies give a rationale for the age restriction. Only 9.5% of the manual therapy and 1% of physical activity and exercise trials undertook an age-specific analysis. Hence there is no evidence base for these therapies being differentially effective with age.

The benefit of this study is that it has accessed a substantial body of evidence from RCTs which has formed the basis for management guidelines in the United Kingdom. We did not, however, consult authors for additional information which was not available in the manuscripts reporting results. This might have provided further information on why, for example, an upper age restriction had been imposed. The common use of upper age limits (including comparatively young limits) is surprising, since particularly for an intervention such as physical activity there are, in population terms, relatively few contraindications.²⁵ Further, the studies very rarely provide any justification for this upper age limit. Nevertheless it may be that the exercise intervention provided within any individual trial may not have been suitable for all older persons.

We have previously made the observation that older persons may be receiving different management for back pain in primary care, specifically that they were more likely to receive only pharmacological management. In this study we have found there is almost no evidence available on which to judge whether the interventions considered here are differentially effective at older ages. It is likely that few would have had sufficient power. A future study may usefully consider undertaking an individual patient data combined analysis of existing trials addressing the issue of whether the effectiveness of these interventions does differ by age.

The conclusions from this study are clear. Upper age limits in back pain trials of manual therapy and physical activity/exercise are common but a justification for these is rarely given. Studies have not been able to determine whether effectiveness differs by age. We recommend that future trials of back pain management consider carefully whether there is a case for an upper age limit and, if so, that they should provide that justification. Any differential management by age needs to be justified by evidence and, for manual therapy and physical activity and exercise, such evidence does not currently exist.

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Conflict of interest

The authors declare that there is no conflict of interest.

Summary points

- There is some evidence that LBP may be differentially managed in primary care according to the age of the patient.
- This review has demonstrated that most trials of management of LBP for manual therapy or physical therapy do have upper age limits but rarely justify having them.
- Almost no trials perform age-specific analyses.
- There is currently no basis on which to manage LBP differently at older ages with respect to physical therapy/exercise or manual therapy.

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