

Clinical Research Agenda for Low Back Pain in Caregivers in Nursing Homes

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Abstract

This short commentary aimed to describe the evidence and research agenda on the prevention and curative effects for low back pain in caregivers in nursing home.

Lumber support has strong evidence of effects but it is not unclear about the timing of the use. Transfer technique, stress management, exercise, cognitive behavioral theory, and multidimension were poor evidence, but the re-inspections of effects by appropriate study design are necessary. It is essential to scientifically explain the mechanism of effect at the same time. Researchers should use the appropriate checklist (e.g. CONSORT 2010) for research design and intervention method, which would lead to improvement in the quality of the study, and would contribute to the accumulation of evidence.

Keywords: Female caregiver; Low back pain; Strategy

Introduction

Japan has become a fast-aging population with the greatest longevity in the world. According to the statistics of Japan, the proportion of the elderly aged 65 years or older reached 23.0% in fiscal 2012, and is estimated to reach 39.9% in fiscal 2060 (Japanese Health, Labor, and Welfare Ministry, 2012). Worldwide, the aging population is rapidly increasing. In such aged societies, various health issues occur in caregivers in nursing homes. Particularly caregivers have high prevalence rates of low back pain (LBP) and a high incidence of worker's compensation claims for back injuries [1,2].

LBP is common in various occupations, its presence being related to activities requiring repetitive lifting and repeated activities for which anomalous postures tend to be adopted [3]. The prevalence of LBP in nursing is high in comparison with other occupations and in relation to other types of work, physical work such as manual lifting and transferring of patients, working conditions such as working time and rest during the night shift, and the working environment [2,4].

On the other hand, for female caregivers, it was reported that mental stress from work and human relations tended to be high [5], and physical fitness elements such as flexibility and muscular strength were low [6]. A study reported that caregivers who provided care at night suffered from a general sense of fatigue, physical disorders, and reduced mental energy compared with employed women [7].

A systematic review reported that female caregivers had higher levels of burden and depression, and lower levels of subjective wellbeing and physical health [8]. Therefore, our researchers must grasp that the issue of health in caregivers in nursing homes should include not only low back pain, but also mental and physical health status, and how to interpret these factors.

In past, we performed to summarize the evidence from randomized controlled trials (RCTs) on the prevention and curative effects for

LBP, and to suggest the concrete strategy as a future agenda [9]. This short commentary aimed to describe the evidence and research agenda on the prevention and curative effects for LBP in caregivers in nursing home.

Research methods

Studies were eligible if they were RCTs. Studies included at least one treatment group in which all therapy was applied. The use of medication, exercise, alternative therapies or lifestyle changes are described, and must have been comparable in the groups studied. There was no restriction on the basis of language. In Japan, nursing is definitely distinguished from care but there are many countries in which this is not the case.. Therefore nurses and nursing students were included as search terms. Furthermore, this study established the principal objective in relation to female caregivers, but target articles were included even if they had a small number of male caregivers relative to a majority of female caregivers.

We searched the following databases from January 1, 1990 up to July 20, 2011: MEDLINE via PubMed, Web of Science, and Ichushi Web (in Japanese). The special search strategies contained the following elements and terms for MEDLINE, Web of Science, and Ichushi Web databases:

A: Search (Caregivers [TIAB] or (Nurse [TIAB] or nursing staff [TIAB]) or healthcare worker [TIAB])

B: Search low back pain or backache or lumbago

C: Search A and B

D: Search ("Back Pain/etiology"[Mesh] or "Back Pain/prevention and control"[Mesh]) and "Occupational Diseases"[Mesh] Limits: Female E: Search "Health Personnel"[Mesh] Limits: Female F: Search D and E Limits: Female

G: Search C or F Limits: Female, Journal Article, Publication Date from 1990/01/01

Only keywords about intervention were used for the searches. Initially, titles and abstracts of identified published articles were reviewed in order to determine the relevance of the articles. Next, references in relevant studies and identified RCTs were screened.

Main results

The literature searches included 352 potentially relevant articles. Finally, six studies met all inclusion criteria. The types of intervention were as follows: multidimensional method [10,11]; transfer technique and stress management [12] lumbar support [13] stretching exercise [14] and cognitive behavioral theory [15].

For LBP, it was a surprising fact that only lumbar support showed significant effect [13]. The authors suggested that the experienced benefit (overall good adherence of wearing; 78%) most likely outweighs the discomfort of the device. This device stabilizes the low back directly by letting the trunk work more.

Five RCTs did not show the effects of interventions. A well designed RCT [12], tried to evaluate the effectiveness of the Trans Technique Intervention and the Stress Management Intervention in reducing LBP, but both program had no effect on LBP status after 2 years. The authors suggested that the important question remain as to whether the lack of improvement in low back health in the active intervention arms is caused by insufficient implementation of the interventions or if it is the intervention itself that failed to produce better low back health. The authors also described a need for discussing other priorities in the prevention of LBP. In another well designed RCT [11], a multidimensional program combining physical training, patient transfer technique and stress management had no preventive effect on LBP prevalence (sickness absence). The authors explained that it was sometimes hard to motivate patients to participate in the multidimensional program. In a RCT based on cognitive behavioral

therapy [15] a statistically significant effect was not observed. There was a high dropout rate (50%) in the intervention group. The authors described that the participants either found attending a session at a specific time and day of week difficult or they judged the intervention to be not helpful.

In our RCT [14] we evaluated the intervention effect of on-the-job training (OJT, a lecture by an orthopedist and stretching exercise) on caregivers in Japanese nursing homes. Unfortunately, even with conducting one OJT and exercising only six minutes every day, adherence of caregivers was low and there appeared to be few effects of the intervention.

Essential Problem and Research Agenda

The overall ineffectiveness on five RCTs was attributed to poor adherence and/or dropout by the participants. We emphasize that researchers should perform a thorough orientation to promote understanding of the program before the main interventions. Greater effects from performing main interventions can be expected when a participant is ready and has enough understanding of the program.

Caregivers are always on a tight schedule in the workplace, which may be the main reason they are often not able to use the techniques that they learned. Therefore, we assume that even if an intervention program produces a lasting effect, continuous reinforcement is necessary. Initially, based on a trans-theoretical model, identification of the stage of the participant is necessary. Then, prior to the main interventions, researchers should perform a thorough orientation to promote understanding of the program. Contents of the program should include loss and profit for oneself by participating and protecting one's body, and success and failure samples that are easy to understand.

Type of intervention	Evidence of effects	Research agenda
Lumbar support	Strong	Study about the timing of the use
		Study on adverse event such as muscle weakness
Transfer technique	Weak or poor	Can the person whom a skill is high in prevent LBP?
Stress management	Weak or poor	For stress-relieving the degree of effect?
		The mechanism of effect of LBP prevention by stress-relieving?
Exercise	Weak or poor	The combination of exercise that effect is high in?
		The degree of effect of a person having high adherence?
Cognitive behavioral theory	Weak or poor	For cognitive befavior the degree of effect?
		The mechanism of effect of LBP prevention by cognitive befavior?
	Weak or poor	The most suitable combination of intervention methods?

 Table 1: Current evidence and future research agenda (reproduction from reference no. 9).

Table 1 showed the current evidence (strength of effect) and future research agenda for various interventions. Clinical researchers should present not only the efficacy data, but also any adverse events or harmful phenomena. In particular, they should clarify problems such as muscle weakness caused by wearing lumbar support too often. Lumber support has strong evidence of effects but it is not unclear about the timing of the use. Transfer technique, stress management, exercise, cognitive behavioral theory, and multidimension were poor evidence, but the re-inspections of effects by appropriate study design are necessary. It is essential to scientifically explain the mechanism of effect at the same time. Researchers should use the appropriate checklist (e.g. CONSORT 2010) for research design and intervention

method, which would lead to improvement in the quality of the study, and would contribute to the accumulation of evidence. Furthermore, it is also necessary to approach by bigger samples (both males and females) taking into consideration e.g. age, profession and long-term results for LBP.

Limitations of this Comment

There were several limitations to the study. Some selection criteria were common across studies, as described above, but bias remained due to differences in eligibility for participation in each study. Publication bias was also a limitation. In addition, a nursing job (in a hospital) is essentially different from a care job (in a nursing facility), but, depending on the country, these are approximately similar working institutions.

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