Acute neck and back pain: preventive interventions

Effects of physical training, manual treatment and cognitive behavioral interventions

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Executive summary

Conclusions

- More studies, using appropriate, rigorous scientific methods, are needed to determine whether measures for treating acute back or neck pain are effective in preventing the development of a persistent, disabling condition. The available studies compare various combinations of treatment in such a way that it is unclear which measures actually prevent the development of a chronic condition. If new research is to contribute to a knowledge base of scientific support, indicating which methods are effective, it is necessary that earlier research, to a greater extent than today, is used as a basis for systematically defining knowledge gaps and identifying the need for studies which replicate earlier results.

- It is not possible to determine which of the methods applied today by physiotherapists, chiropractors or naprapaths are most effective in preventing episodes of acute back and neck pain from becoming chronic conditions. The available research gives no information as to how current treatment routines could be improved or whether the results support increasing or reducing use of the methods currently applied in the healthcare system.

Background

Every year, one person in five experiences an episode of back and neck pain. Although only ten per cent of all cases persist, this is one of the greatest health issues of our time. If it were possible to prevent an acute episode from becoming chronic, this would improve the chances of the individual patient avoiding disability and poorer quality of life. Chronic pain is also associated with higher health and medical costs and loss of production due to absence from work on sick leave. Thus prevention offers major economic advantages for both society and the individual.

Aim

The aim of the report was to evaluate the effects of preventive measures in cases of acute pain in the back and neck, i.e. treatment intended to prevent the persistence of pain as a chronic condition. The effects were to be evaluated at least three months after completion of treatment. The methods were evaluated from medical, economic and ethical perspectives.

Method

The starting point of the report was to evaluate methods which can be provided by a physiotherapist. However, as the report does not determine whether treatment should be delivered by a specific healthcare provider, the main focus of the report is on the methods and the acute condition. The systematic review was conducted in accordance with SBU's protocol. Relevant scientific studies were identified by a search of the electronic databases and scrutinised with respect to quality. The subjects of the studies which are included in this report comprise individuals, regardless of age, who have sought care for acute or subacute problems in the back and neck. The reliability of the results was graded according to GRADE[1].

Results

The scientific basis comprised a total of 36 studies investigating the effects of physical training, manual methods and behavioral interventions. In most of the comparisons between interventions and control conditions, the overall scientific evidence was insufficient for drawing conclusions about the effects of the interventions. Many studies were unique with respect to choice of treatment and control measures and also with respect to the way in which the results were measured. A sole study seldom provides an adequate basis for assessing the scientific reliability of the results according to the GRADE classification. The results of such studies can however be of interest, not least as a basis for further research.

[1] *Grading of Recommendations Assessment Development and Evaluation.*

Neck pain and whiplash-related problems

With respect to whiplash-related problems, the report includes a study which showed that active treatment with physical training of the neck under the supervision of a physiotherapist had a greater effect than standard treatment. Positive effects were reported with respect to the pain experienced by the patient and absence from work on sick leave. The standard treatment comprised written advice and instruction and included advice to the patient to start exercising at home a few weeks after the injury.

For patients with neck pain, the studies included in the report showed that a multidisciplinary treatment strategy which also included behavioral oriented interventions was more effective when it was tailored specifically to the individual patient. The level of disability increased more in these patients than those whose treatment was not individually tailored.

A study which investigated the effect of manipulative treatment for neck pain showed greater improvement with respect to pain than medication for pain relief. There were no difference regarding pain or the level of disability between manipulation and mobilisation or training at home. The studies reported that side effects of treatment, such as increased pain, headache and neck stiffness, eased within three days.

Low back pain

The overall scientific evidence with respect to physical training in combination with general medical treatment showed no clear additional improvement with respect to pain, quality of life or level of disability. Patients who received professional advice as well as training reported less pain at follow-up than those who had received advice or training only.

Collation of the literature disclosed that manipulative treatment as the sole treatment or in combination with other measures failed to reduce the intensity of the pain further, or to reduce disability compared with other treatment measures. Side effects in the form of pain and stiffness occurred, but eased shortly after treatment.

Two computer-based methods intended to improve patient awareness and attitudes showed positive effects on pain. One measure comprised a daily email message reminding the patients of the advice and exercises previously provided. The other measure investigated whether attention bias modification, using a computer-based training program, could attend away from words which could be associated with pain. In comparison with control treatment, patients using either method perceived less pain.

Ethical aspects

In order to try to prevent an episode of acute pain persisting as a chronic condition, the patient must make changes to his or her daily living. The question is how far the health system should go in influencing lifestyles and attitudes "for the good of" the individual patient with acute or subacute pain. Conflicts may arise between the ethical principle of doing good and the principle of autonomy. From an ethical aspect it is therefore important to reflect over to what extent the healthcare provider should interfere with the patient's life situation and lifestyle and how far the requirement for compliance with treatment should be pursued.

Another ethical issue is the risk of untoward side effects of treatment in relation to the anticipated benefits. Although the side effects may be minor and transitory, they need to be considered in relation to any uncertainty about the effects of treatment.

Health economic aspects

As the scientific basis with respect to health effects in this report is considered to be inadequate, it is not possible to assess the cost effectiveness of various measures intended to prevent the development of chronic pain.

Knowledge gaps and the direction of future research

There is insufficient evidence to support the effectiveness of the various methods in preventing an episode of acute neck and back pain persisting as a chronic condition. Further research is therefore important. It is hoped that this report will raise awareness among researchers of the importance of designing scientific studies which will yield reliable results and which use previous research as a basis. In order to achieve this aim, resources need to be made available for further research.

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