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Long-Term Benefits of an Educational and Physical Program on Headache, and Neck and Shoulder Pain, in a Working Community

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Abstract: **We previously published the results of a controlled trial that showed the efficacy of a workplace educational and physical program in reducing headache, and neck and shoulder pain. Participants recorded daily pain episodes in diaries; after 2 months of baseline observation, the program was administered to the intervention arm only, and comparison with the control arm was performed at month 8. The objective of the present study was to confirm the long-term (14 months from the beginning of the study) benefit of the program in the intervention arm of the study (192 office employees). Outcome measures of the present analyses were: 1) the number of days/month with headache, and neck and shoulder pain; 2) the frequency of days with analgesic drug consumption; 3) the proportion of subjects with 4 or more days/month with headache or neck and shoulder pain at baseline who achieved a ≥50% reduction in pain (responder rate). Days/month with headache decreased from 5.50 at baseline (months 1–2) to 3.11 at months 13–14 ($P < .001$); from 6.79 to 3.88 ($P < .001$) for neck and shoulder pain; and from 1.72 to 0.86 ($P < .001$) for analgesic consumption. Responder rates were 58.8% (95%CI = 47.1–70.5) for headache, 60.9% (49.4–72.4) for neck and shoulder pain, and 68.2 % (48.7–87.6) for drug consumption. These results confirm that the program may be effective at long term.**

Perspective: ***This article presents the results at long term of an educational and physical program in reducing headache, and neck and shoulder pain, in a working community. Since the benefits remained stable for a considerable period of time, a randomized trial is ongoing to confirm these results on a larger, less-selected working population.***

Key words: *Education, exercise, headache, migraine, neck pain.*

The efficacy of noninvasive physical management in reducing the frequency of various forms of headache and neck pain has been studied for a long time, but conflicting results have been reported.[5,6,10,11,12,13,17,21,22] Moreover, the majority of studies employ a rather short follow-up period, so little data are available on the persistent effectiveness of physical management. A systematic review published in 2004 aimed to quantify and compare the magnitude of relief from chronic/recurrent headaches by several different noninvasive physical treatments.[6] Of the 22 studies that met inclusion criteria for comparison of methods, only 7 studies reported a follow-up period of adequate duration (more than 3 months following onset of therapy) and only 2 studies utilized a follow-up period of at least 6 months. More recently, a cluster randomised trial was undertaken using a crossover design (15 weeks on intervention and 15 weeks off intervention).[23] Other similarly-controlled studies have been reported but assessment was limited to neck pain only.[7,14,20,28,31]

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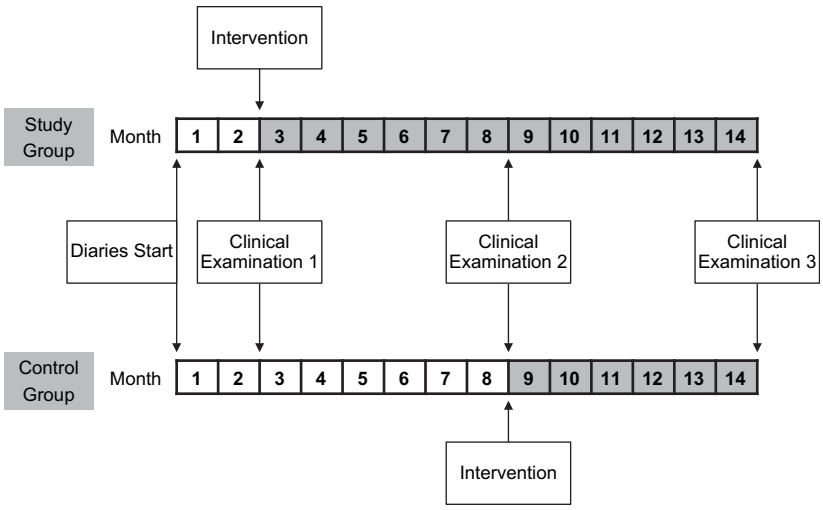

Figure 1. The study design according to time flow.

In a controlled trial to evaluate the effectiveness of a simple educational and physical program administered to a large cohort of public servants, we found that 6 months following treatment, the monthly frequency of headache, and neck and shoulder pain, was reduced by 40% in the experiment compared with controls. Moreover, the index of headache, or neck and shoulder pain, as well as the frequency of drug intake, was significantly decreased in the treatment group.[19] The purpose of the current study was to extend the follow-up period to 12 months (ie after 14 months from the beginning of the study, Fig 1) in order to verify the long-term benefit of intervention in the treatment group.

Methods

The design of this controlled, nonrandomised trial has been extensively described in a previous report.[19] The protocol was assessed and approved by the Institutional Review Board of the San Giovanni Battista Hospital of the City of Turin (Italy). Subjects entitled to participate were the 661 employees of the City of Turin's registry and tax offices as of January 1, 2005. Specifically, 330 subjects were from the central registry office (study group) and 331 from the peripheral registry offices and the tax office (control group). Subjects who agreed to participate and gave informed consent were 192 and 192, respectively. No exclusion criteria were applied.

Data Collection

Detailed data related to headache, and neck and shoulder pain, were collected in a standardized fashion; a psychological assessment according to Axis 1 of the DSM-IV[18] was carried out under the supervision of the same senior neurologist; and a clinical examination that included palpation of pericranial and cervical muscles was performed by researchers, whose interrating agreement was satisfactorily assessed in a blind fashion. Diagnoses of migraine with or without Aura (M), Tension Type Headache (TTH), or Myogenous neck and shoulder pain (MP), were made according to the guidelines of the International Classification of Headache Disorders[16] and the International Association for the Study of Pain.[15] Two or more diagnoses in the same subject were possible. All participants received a diary for daily self–reporting of severity (score 0–5) and duration (hours) of headache, and neck and shoulder pain, intake of analgesics (by type), and menstruation days. At the end of each month, diaries were collected, reviewed, and electronically processed by an optic reader and a dedicated computer program. All participants were asked to write in their diaries for the full 14 months.

Intervention

Before administering the program, an explanation was given of its main purposes, and particular emphasis was placed on the fact that some muscles, especially in the cranio-facial-cervical area, may be unconsciously kept at too high a stage of contracture and that this may facilitate or increase pain in that area. Thus, the aim of the program was to reduce muscle contraction and to increase the capability of perceiving it when too elevated. The program consists of brief shoulder and neck exercises to be performed several times a day, a relaxation exercise, and instructions on how to reduce parafunction and hyperfunction of the craniofacial and neck muscles during the day. These instructions are given below.

Relaxation exercise (once or twice a day): Sit down in a comfortable armchair in a quiet room. Let your lower jaw drop completely for about 10 to 15 minutes. Apply warm pads on your cheeks and shoulders.

Posture exercises (8–10 times every 2–3 hours): 1) Stand upright with your heels, hips and nape of the neck against a wall. Without moving the rest of your body, bring your shoulders into contact with the wall and release, rhythmically; 2) With your body and head against the wall, make horizontal movements of the head, forwards and backwards; 3) Cup your hands behind your neck. Stretch your head backwards against counterpressure from your hands. Relax after 2–3 seconds.