Management of acute neck pain in general practice: a prospective study

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ABSTRACT

Background

Research on neck pain in primary care is sparse. The role of GPs in taking care of patients with neck pain has not been described so far. This study focused on interested in the interaction between patients and GPs in their first contact on a new episode of neck pain.

Aim

To describe GPs' management of acute neck pain in patients and to detail the diagnostic and therapeutic procedures undertaken by GPs and self-care by patients.

Design of study

A prospective cohort study with 1-year follow up.

Setting

General practice in The Netherlands.

Method

Patients consulting their GP for non-specific acute neck pain lasting no longer than 6 weeks were invited to participate. Questionnaires were collected from patients at baseline and after 6, 12, 26, and 52 weeks. Patients rated their recovery on a 7-point ordinal scale.

Results

In total 187 patients were included. At baseline GPs prescribed medication for 42% of patients, mostly non-steroidal anti-inflammatory drugs (56%) or muscle relaxation medication (20%); 51% were referred to a physiotherapist. Seventy-four per cent of referred patients reported recovery at the end of the follow-up year, whereas 79% of non-referred patients reported recovery. Frequently-given advice by the GP was to 'wait and see' (23%), 'improve posture' and 'stay active' (22%) or to 'take a rest' (18%). Self-care by patients included different sources of heat application (79%) and exercises (57%). Complementary medicine was used in 12% of cases and 39% of patients visited their GP again during follow up. Consultation of a medical specialist and ordering of X-rays rarely occurred.

Conclusion

Management by GPs included a strategy to 'wait and see' for an expected favourable natural course supported by medication, or referral to a physiotherapist.

Keywords

consultation and referral; duty to follow-up; family practice; neck pain; practice management.

INTRODUCTION

Neck pain is one of the most common musculoskeletal complaints. About two-thirds of the population will experience neck pain at some point in their life.[1,2] In a Canadian study the age-standardised 6-month prevalence of neck pain with low disability was 40%.[2]

Prevalence rises with age for men and women and is the highest in the age group between 50–59 years.[1,3] In general, women are affected almost twice as much as men.[4,5] Prevalence rates of neck pain in general practice has been estimated to be between 18 and 23 per 1000 registered patients per year.[6,7] The percentage of people in whom neck pain becomes chronic is generally thought to be about 10%.[1,8]

Disability and sick leave figures for neck pain are substantial but, in general, on a lower level than figures for low-back pain.[1] Although most people are only mildly disabled, neck pain may cause severe disability in 5–10% of those affected.[2,9]

Only 15–27% of individuals seek a healthcare provider for neck pain.[10,11] In a telephone survey in eight countries in Europe, 27% of patients had never sought any medical help for their musculoskeletal pain, including neck pain.[10] In Sweden, data from a population survey in 1997 on neck pain showed an estimated 15% GP consultation rate,[11] which means that only one out of seven people with neck pain

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How this fits in

GPs followed a dual strategy in the management of acute neck pain: advice to 'wait and see' for an expected favourable natural course supported by medication or referral of the patient for physiotherapy. At the end of the follow-up period there was no significant difference in recovery for referred and non-referred patients. Consultation of a medical specialist and referral for X-rays rarely occurred in acute neck pain management. Patients reported a wide variety of self-care treatments, most often used were sources of heat application.

visited the GP. In The Netherlands neck pain contributes up to 1–2% of GP consultations.[1,12] In general, reasons for visiting the GP are: higher pain levels, disabling neck pain, and multiple pain sites.[4,8,11]

GPs varied widely regarding their management of neck pain.[13] A lack of clinical guidance and effective therapeutic interventions for neck pain prompted a variety of treatments and referrals. Little is known about which diagnostic and therapeutic modalities are applied to patients with acute neck pain. The aim of this study was to describe GPs' management of patients with acute neck pain. Frequency and directions of diagnostic and therapeutic procedures undertaken by GPs and self-care in patients will be described.

METHOD

Study population

GPs working in the city of Rotterdam and the surrounding suburbs were invited to participate. Forty-one GPs agreed to participate and 29 GPs enrolled patients during the recruitment period from March 2001 until August 2002. The study design was a prospective cohort study with a follow-up period of 1 year. At baseline consultation, consecutive patients with first-time or recurrent acute neck pain lasting no longer than 6 weeks and with a pain free interval of at least 3 months were invited to participate in the study.

Inclusion criteria were age above 18 years and sufficient knowledge of the Dutch language to complete written questionnaires. All patients with specific causes of neck pain (that is, known vascular or neurological disorders, neoplasms, rheumatic conditions, and referred pain from internal organs) were excluded.

After receiving oral consent GPs provided patients with an envelope containing the baseline questionnaire, an information form about the content of the study, an informed consent form, and a pre-paid return envelope. Patients were included in the study only after returning a completed baseline questionnaire and a signed informed consent form.

Questionnaires

The baseline questionnaire contained questions on demographic variables, previous history, previous treatments for neck pain, duration and self-reported cause of current neck complaints, previous and concomitant headache, radiating pain, smoking habits, and sudden onset. Patients were also asked what advice was given by their GP, which medication was prescribed, whether the patient was referred for treatment or further examinations, and if a follow-up appointment had been made. Patients were also asked about self-care.

Follow-up questionnaires were sent after 6, 12, 26 and 52 weeks. Patients were asked if they still experienced neck pain or had a recurrence and therefore consulted their GP again. Questionnaires asked specifically whether the patient visited the health care provider after referral. Patients rated their perceived recovery on a 7-point ordinal scale. The recovery scale ranged from 1 (complete recovery) to 7 (my complaints are worse than ever) with a rating of 4 indicating no change. If a successive questionnaire was not returned within 2 weeks, the patient received a written reminder, followed by a telephone call an additional 2 weeks later.

Non-responders were defined as patients who were approached by their GP to participate but decided not to cooperate. At baseline the GPs filled in a short form of all patients they had invited to participate in the study. GPs were asked to report date of birth, sex, cause of neck pain, outcome of physical examination, diagnosis and proposed diagnostic and treatment modalities. GPs also rated the pain level of each patient on an 11-point numerical pain rating scale, ranging from 0 (no pain) to 10 (unbearable pain).

GPs sent the short forms immediately to the researchers after each visit at baseline. From the received short forms birth dates were matched with the final cohort to identify non-responders.

Statistical analysis

Descriptive statistics were used to present the frequencies and standard deviation (SD) of diagnostic and therapeutic modalities and referrals. Frequencies of the perceived recovery scale were calculated. Patients scoring 1 on the 7-point perceived recovery scale ('I am completely recovered') and 2 ('I am much improved') were joined together and considered to be 'recovered'. The remaining scores were considered as not recovered.

Differences between responders and non-responders were assessed by Student's *t*-test. A *P*-value of 0.05 was used as the criterion for statistical significance. All statistical analyses were carried out using SPSS (version 10.0).

RESULTS

Study population

At baseline 249 patients with acute neck pain were asked by their GP to participate in the study. In total 190 patients (76%) responded and returned the baseline questionnaire and written informed consent. Three patients did not meet the inclusion criteria and were excluded (two patients had chronic neck pain complaints and one patient was aged <18 years). One hundred and eighty-seven patients formed the initial cohort and were predominantly younger females. Patient characteristics are presented in Table 1. Most patients had experienced neck pain episodes before the baseline period (63%) and had received treatment at the time. Concomitant pain was reported by 81% of patients. Mean duration of neck pain at baseline was 16 days (SD = 13.1). Motor vehicle accidents were a common cause of neck pain in this cohort (23%). In many patients (62%) neck pain was accompanied by headache. There was no difference in the mean score on the numerical pain rating scale reported by patients and GPs at baseline.

There were significantly more male (*n* = 59) than female non-responders (51% versus 36%; *P* = 0.032). Although non-responders were on average younger (36.8 versus 40.0 years), age and the other variables that were taken into account did not differ significantly.

Table 1. Patient characteristics at baseline (*n* = 187).

	Mean age, years	*n* (%)
Sex		
Female	38.2	119 (64)
Male	43.2	68 (36)
Employed		148 (79)
Smoker		61 (33)
Previous episodes of acute neck pain		118 (63)
Previous treatment for neck pain		74 (40)
Duration of acute neck pain <2 weeks		79 (42)
[a]Pain radiating to:		
Shoulder(s)		104 (56)
Arm(s)		69 (37)
Back		10 (5)
Between shoulder blades		76 (41)
Neck pain accompanied by headache		117 (62)
Self-reported cause of neck pain		
Spontaneously/unknown		70 (38)
Motor vehicle accident		42 (23)
Noticed after waking up		32 (17)
After a fall or hitting the head		13 (7)
Sudden onset		12 (6)
Stress related		10 (5)
Work related		8 (4)

[a]*Total is more than 100% because patients could indicate more than one area where they experienced pain.*

Follow up

At 1-year follow up 122 patients (65%) completed all six questionnaires; 138 patients (74%) returned one or more questionnaires of which 76% reported to be recovered. Diagnostic investigations and referrals are presented in Table 2.

Physical examination was performed by GPs in 97% of baseline consultations and 89 patients (48%) were not referred for a diagnostic investigation or therapeutic modality. Referrals for further diagnostic investigation were limited: 15 patients (8%) were referred at baseline for X-rays and two patients (1%) to a neurologist. During follow up an additional eight patients (4%) were referred for X-rays and nine patients (5%) to a neurologist or an orthopaedic surgeon.

The main treatment modality was referral for physiotherapy (51%). Physiotherapists in The Netherlands mainly deliver traditional physical therapy and sometimes manual therapy. As patients are often not clear whether they received traditional physical therapy or manual therapy, both strategies were combined under the heading 'physiotherapy'.

During the follow–up year an additional 23 patients were referred to physiotherapists. In total 85% of referred patients for physiotherapy actually visited the therapist. An additional five patients stated they visited a physiotherapist without being referred by their GP. Seventy-four per cent of those patients who were referred to a physiotherapist reported recovery at the end of the follow-up year (40% were completely recovered and 34% much improved) and 79% of non-referred patients reported recovery (54% were completely recovered and 25% much improved).

Analgesic medication was significantly more frequently prescribed to non-referred patients than to referred patients (56 versus 29%; *P*<0.001). Therapeutic modalities are reported in Table 3.

During the follow-up year 39% of the patients visited GPs again for neck pain complaints and half

Table 2. Referrals of patients (*n* = 187) to medical specialists, physical therapists or further examination.

	Baseline	Follow-up
	n (%)	*n* (%)
Physical therapist	95 (51)	23 (12)
Medical specialist	2 (1)	9 (5)
Social worker	1 (0.5)	-
X-rays neck	15 (8)	8 (4)
Blood tests	2 (1)	-
Ultrasound	1 (0.5)	-

Table 3. Therapeutic modalities applied or advised by the GP (*n* = 187).

Modality	*n* (%)[a]
No advice given	3 (2)
Advised the patient to wait and see for the natural course	42 (23)
Advised to improve posture and keep moving	41 (22)
Advised the patient to keep rest	33 (18)
Instructed the patient in home exercises	16 (9)
Advised to stop working and report on sick leave	6 (3)
Other advice given	6 (3)
Prescribed medication[b]	78 (42)

[a]*Total is more than 100% because the GP could apply several modalities at the same time.* [b]*More women (48%) received pain medications than men (31%) and women received more muscle relaxants (13%) than men (6%).*

of them twice or more. A follow-up appointment was made by the GP in 4% of cases. Patients that revisited the GP were more often referred for physiotherapy (60 versus 49%) and reported less often to be recovered (56 versus 84%). Patients referred to the physiotherapist revisited the GP more often (44 versus 33%). GPs prescribed medication at the first consultation for 42% of the final cohort, mostly non-steroidal anti-inflammatory drugs (NSAIDs; 56%) or muscle relaxation medication (20%). A wide range of advice was given. The following advice was frequently given by the GP: 'to wait and see for an expected favourable natural course' (23%), to 'improve posture' and 'to stay active' (22%).

Patients reported a wide variety of self-care strategies (Table 4). Various sources of heat application were the most used self-management strategy (79%). Trying to loosen a stiff neck by exercises or auto-manipulation was also often used (57%). None of the GPs prescribed the use of a soft collar but nine patients reported to have used one. Five of them did so without a self-reported traumatic cause of their neck complaints. The belief that immobilisation of the neck is beneficial was present in 39% of patients. Twenty-three patients (12%) used complementary medicine, mainly later in the follow-up year. Most often used was reiki/energy healing therapy and acupuncture.

Table 4. Reported self-care by patients as baseline and during the follow-up year (*n* = 187).

Modality	*n* (%)[a]	Example
Pillow	57 (30)	Tried another pillow
Heat	148 (79)	Hot oil, UV lamp, warm blanket/shower/bath, sauna, warm cloths, solarium
Exercises	107 (57)	Neck loosening exercises, fitness training, improving posture
Rest	64 (34)	Keeping the neck as still as possible, holding rest
Massage	13 (7)	Massage applied to the neck by others
Soft collar	9 (5)	Wear a soft collar
Adjusted work	8 (4)	Adjusted work or adjusted work load
Complementary medicine	23 (12)	Acupuncturist, chiropractor, craniosacral therapist, nature healer, reiki, magnetiser

[a]*Total is more than 100% because patients could apply several modalities at the same time.*

DISCUSSION

Summary of main findings

Management neck pain by GPs seems to constitute two almost equal frequently applied directions: a policy 'to wait and see' for an expected favourable natural course, often supported by medication, and referral to a physiotherapist with a more restricted support of medication. NSAIDs are most often prescribed followed by muscle relaxants.

Strength and limitations of the study

The study population cannot be considered as completely representative of the general population of patients with acute neck pain. Visiting the GP already introduces a form of selection bias. Non response came mainly from younger males as has been reported before.[9,14]

Finally, 29 of the 42 GPs (69%) who agreed to participate included one or more patients in the study. This percentage is comparable to that found in other studies.[15,16] Limited cooperation by GPs has been reported before.[17,18] Half of the participating general practices were regularly including patients in the study. The other half included one or two patients during the whole inclusion period. The characteristics of patients, included by GPs who recruited only a few patients, were compared with those of the six most actively recruiting GPs; there was no significant difference in patient characteristics. It was estimated that the number of eligible patients by full cooperation of participating GPs was 325 and therefore the total of 249 patients who were approached to participate in the study seems acceptable in this respect. The study size was moderate with an acceptable response rate over the follow-up year, in line with other cohort studies on neck pain.[13,19] This study concerned patients with acute neck pain in a primary care setting with a great variety of self-reported causes representing the wide spectrum of patients' characteristics for general practice.

Comparison with existing literature

A high proportion of patients were referred for physiotherapy. The literature indicates that patients

with chronic neck pain referral rates for physical therapy vary between 40 and 50%.[13, 20, 21] In this study an even higher proportion of patients were eventually referred. The question arises if this is justifiable in the absence of evidence-based guidelines that support these actions.[19] A cost-effectiveness study in patients with chronic neck pain comparing physiotherapy and GP care favoured physiotherapy (in specific manual therapy) as more cost-effective.[22] In the current study the outcome of referred patients was not significantly different from that of non-referred patients; however, this does not imply that physiotherapy is not effective. It is possibly merely the result of the selection process the GP makes at the first consultation.

GPs reported more referrals to a physiotherapist than patients did. In two retrospective studies on chronic neck and low-back pain, a greater proportion of actual visits to a physiotherapist was found than reported referrals by GPs.[13,23] Reasons for these differences could be that referrals are not always accurately registered by GPs and that patients do not always follow the advice of GPs. The use of complementary medicine increased up to 12% during follow-up. Cross-sectional studies on chronic pain present higher percentages, between 18 and 28%, of complementary medicine use.[24,25] In the current study all visits to complementary medicine were self-referrals and happened mainly during the chronic phase of neck pain.

Only 39% of patients visited their GP again for neck pain complaints during the follow-up year and half of them did so twice or more. In retrospective studies of chronic neck pain revisiting rates were between 41–50%:[8] 45% in chronic musculoskeletal pain[5] and 80% in low-back pain.[23] The somewhat limited number of revisits for neck pain in the current study may indicate that neck pain in general has a more favourable natural course. Revisiting frequencies are in general affected by factors like perceived health, severity of neck pain, female sex, number of pain sites, and psychological status.[26] Another explanation for the relatively lower revisiting rates could be that patients have lower expectations of the benefits of GP help for neck pain.[19]

Little is known about which self-care management actions patients take to relieve their complaints. This study shows that heat applications are still the most popular form of self-care.

A substantial number of GPs advised patients to keep the neck as rigid as possible. A high percentage of patients were also immobilising the neck despite the current tendency in the management of neck and back pain toward early reactivation and avoidance of inactivity.[27] Although there is still no proven effective treatment for acute neck pain, it is generally accepted that staying active is likely to be more beneficial than taking rest.[28] It takes a lot of effort before patients as well as GPs are familiar with new treatment insights.

The referral rate for X-rays in this study was limited. This probably reflects the generally accepted belief among GPs that X-rays in the case of non-specific acute neck pain are not helpful for diagnosis.

Implications for clinical practice and future research

The bivariate strategy the GPs follow is congruent with the natural course of acute neck pain. The policy to 'wait and see', with reduced consultation of a medical specialist and X-rays corresponds with the fast recovery of almost half of the patients. GPs play an important role in excluding specific causes of neck pain. Only then a policy 'to wait and see' can be acceptable for the patient and the doctor.

Given the use of a wide variety of self-care modalities, the question arises about what supplementary value the patient receives by visiting the GP. The limited role of GPs in this area possibly emphasises patients' perspectives of GPs' role in the management of acute neck pain. Expectations of GPs' role in acute neck pain seem to differ substantially between patient and GP. Future research should focus on differing expectations and patients' preferences.

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Ethics committee

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Competing interests

The authors have stated that there are none.

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