

The Symptom of Night Pain in a Back Pain Triage Clinic

Ian J. Harding, FRCS (Orth), Evan Davies, FRCS (Orth), Elaine Buchanan, MSc, MCSP,
and Jeremy T. Fairbank, MD, FRCS

Study Design. Prospective longitudinal study of patients attending a back pain triage clinic with night pain.

Objective. To assess the importance of the symptom of night pain in patients attending a back pain triage clinic.

Summary of Background Data. The 1994 US Agency for Health Care Policy and Research guidelines suggest nighttime pain should be used as a “red flag.” Night pain is known to occur in many conditions, and although common in patients with known serious pathology, the prevalence of night pain in a back pain triage clinic is not known.

Methods. A total of 482 consecutive patients attending a back pain triage clinic were assessed, including history of frequency and duration of night pain. Clinical examination was performed, and demographic data obtained. Magnetic resonance imaging was performed if indicated according to local guidelines. Oswestry, visual analog scales (for pain), and hospital anxiety depression scale, patient-based outcome scores were obtained.

Results. There were 213 patients who had night pain, with 90 having pain every night. No serious pathology was identified. Patients with night pain had 4.95 hours continuous sleep (range 2–7) and were woken 2.5 times/night (range 0–6). Patients with pain every night had higher Oswestry, visual analog scale, and hospital anxiety depression scale scores than those who did not.

Conclusions. Although it is a significant and disruptive symptom for patients, these results challenge the specificity of the presence of night pain *per se* as a useful diagnostic indicator for serious spinal pathology in a back pain triage clinic.

Key words: back pain, night pain, triage, serious pathology. *Spine* 2005;30:1985–1988

Back pain is a major cause of morbidity in our society, second only to respiratory illness as a cause of visits to physicians.¹ Features of the history and, to a lesser extent, the physical examination, influence therapeutic choices, diagnostic imaging, laboratory tests, and specialist referral.² The importance of the association between low back pain and night pain is included in all major text books on the assessment of spinal pain and is considered core knowledge in medical training.

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Address correspondence and reprint requests to Ian J. Harding, FRCS (Orth), The Inch, Newport Road, Niton, Isle of Wight, PO38 2DG, United Kingdom; E-mail: ianharding@doctors.net.uk

A back pain triage clinic aims at delineating “simple” backache, nerve root pain, and potential serious spinal pathology,³ thereby identifying patients who require surgical input. The 1994 US Agency for Health Care Policy and Research guidelines⁴ help identify serious spinal pathology from features in the history and examination. One of the “red flags” cited as a possible cause of tumor or infection is “severe night time pain.” However, similar guidelines in the United Kingdom from the Royal College of General Practitioners, originally published in 1996 and subsequently reviewed,⁵ do not mention night pain. Night pain is frequently cited as a reason for urgent referral to the back pain triage clinic, not only simply because it exists as a red flag, but also because throughout medical education, pain at night is associated with “serious pathology” (e.g., osteoid osteoma).^{6,7} Certainly, there is a high prevalence of back pain at night in patients known to have a tumor,^{8–10} and it has been shown that in patients with a primary tumor, the presence of back pain at night is a good indicator of spinal metastases.¹¹ However, nocturnal back pain has also been described in many other conditions, including spinal stenosis,¹² disc prolapse,¹³ chronic obstructive pulmonary disease,¹⁴ and psychologic disorder.¹⁵

To diagnose serious pathology, expensive and/or invasive tests are often required, and there would be clear advantages in identifying a factor in the history (e.g., the presence of night pain) that would help in diagnosis. This prospective longitudinal study aims at identifying the prevalence of back pain at night in patients presenting to a back pain triage clinic, and evaluating if the presence of night pain helps in the diagnosis of spinal disease and, in particular, serious spinal pathology (tumor or infection).

■ Materials and Methods

A total of 482 patients attending a back pain triage clinic in an orthopedic teaching hospital between April and September 2002 were prospectively evaluated. Patients are referred from general practitioners, and the back pain triage clinic is a first point of contact for secondary care. All adult patients with back pain are seen in this clinic, except emergency referrals and those with a history of trauma or scoliosis. Patient demographic data were obtained, and the patients completed a computer-based questionnaire, including questions concerning the frequency, distribution, duration, and severity of night pain that they may have had. To avoid any ambiguity in what is inferred by night pain, we asked specifically: “Does pain affect your sleep?” “How many hours sleep in total do you manage?” and “How many times per night are you woken by your pain?”

The Oswestry disability index (ODI)¹⁶ was derived from the computer-based questionnaire, while a printed questionnaire was used for the hospital anxiety depression scale (HADS)¹⁷ and visual analog scale (VAS).¹⁸ The VAS score used was a measure of average pain during the last week. A specialist physiotherapist (E. B.) performed a clinical assessment of the lumbar spine and lower limbs, including neurologic examination and straight leg raising. If indicated, magnetic resonance imaging (MRI) was requested according to local guidelines. These guidelines are:

1. In the presence of back pain alone, limited MRI is requested to exclude serious pathology. It is given priority in the presence of red flags, according to Royal College of General Practitioner guidelines.⁵
2. If leg pain is an additional feature, then MRI is requested when there is progressive neurologic deficit or surgery is to be contemplated.
3. Urgent MRI is requested if cauda equina syndrome is suspected. Serious spinal pathology was defined according to the US Agency for Health Care Policy and Research guidelines,⁴ which cite night pain as a “red flag” for spinal tumor or infection.

Statistical comparison of MRI diagnosis was performed between groups of ever present and occasional night pain using a χ^2 test in the SSPS for windows statistical package (version 10.0; SSPS, Chicago, IL).

Results

There were 213 (44%) patients presenting to the triage clinic who complained of pain at night. For 90 (42%) patients, this pain was present every night (*i.e.*, “ever present”). There were 106 (50%) females. Mean age was 44 years (range 17–87). When night pain was “ever present,” this was a considerable burden on the patients’ sleep pattern, being woken a mean time of 2.5 per night (range 0–6), with an average of 4.95 hours sleep (range 2–7). In 67% of patients, pain was also in the lower limbs as well as the lumbar region.

A total 135 magnetic resonance images were performed, including for the 84 (93%) patients who had “ever present” night pain. No serious pathology was identified on these scans. However, other pathologies

Table 1. MRI Findings of Patients With Night Pain

| | Ever Present (n = 90) | Occasional (n = 123) |
|---------------------------------|--------------------------|-------------------------|
| Degenerative disc disease | | |
| “Simple” degeneration | 30 | 16 |
| Annular tear | 8 | 9 |
| Nerve compression | 8 | 4 |
| Facet disease (no stenosis) | 6 | 6 |
| Facet disease with stenosis | 11 | 3 |
| Other | | |
| Hemangioma | 2 | 1 |
| Pars defect | 2 | 1 |
| Scheuermann disease | 1 | 0 |
| Possible ankylosing spondylitis | 1 | 0 |
| Old wedge fracture | 0 | 1 |
| Normal | 15 | 10 |
| No MRI | 6 | 72 |

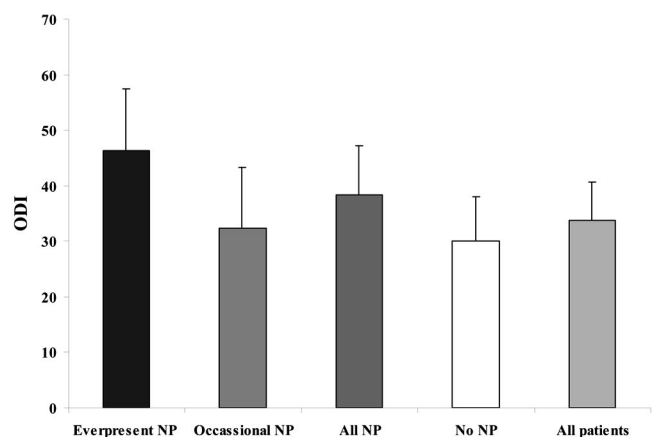


Figure 1. Night pain (NP) and mean (SD) ODI.

were identified, and these are shown in Table 1. There was a significant difference between the numbers of patients having “simple” disc degeneration who had “ever present” as opposed to occasional night pain ($P < 0.001$). We defined disc degeneration as “simple” in the absence of other pathologic findings (*e.g.*, annular tear, neural compression, stenosis). Where sample size permitted (more than 5 cases for a χ^2 test), no significant difference was found between the other groups. Six patients with “ever present” night pain did not have MRI because of claustrophobia (2) and resolution of symptoms (4). At 18 months following initial presentation, no serious pathology had become evident in any of these patients. The single patient with “possible ankylosing spondylitis” on MRI was subsequently shown not to have this condition.

Figures 1 and 2 show the association of night pain on the ODI and VAS scores, respectively. There was a significant difference in the ODI and VAS scores between those patients with “ever present” night pain and those with no or occasional night pain ($P < 0.05$, nonpaired *t* test). The impact of night pain on the HADS is shown in Figure 3. The HADS is expressed as a percentage of the group that had a normal (<10), increased ($>10-15$), or

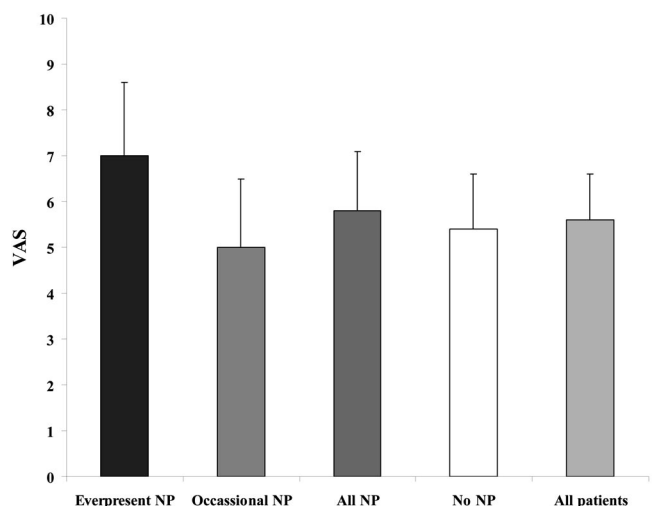


Figure 2. Night pain (NP) and mean (SD) VAS.

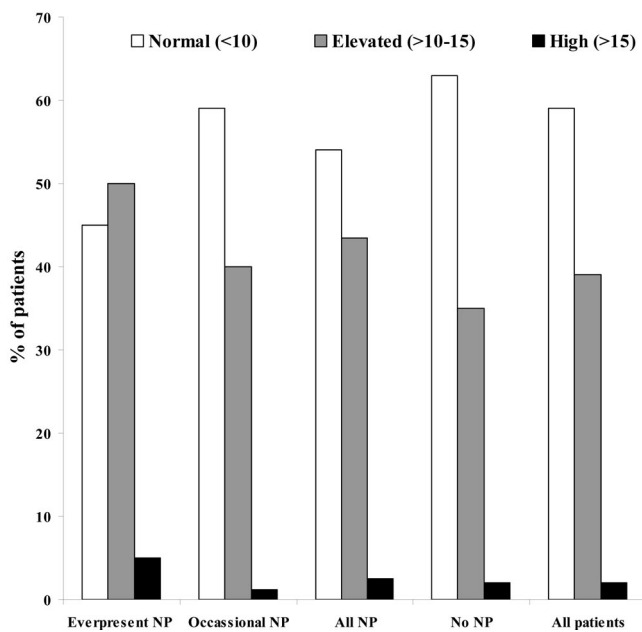


Figure 3. Night pain (NP) and HADS score.

high score (>15). In patients with “ever present” night pain, there was a significantly higher proportion with increased or high scores compared to those with no or occasional pain ($P < 0.05$, Mann-Whitney U test).

Discussion

This study shows a high prevalence (44%) of lumbar night pain in patients attending a back pain triage clinic. Our results show that night pain is widespread in all age groups, both sexes, and presents with additional lower limb pain in two thirds of patients. The impact of night pain on the patient is important. In this study, 19% of patients presented with “ever present” night pain, causing frequent waking and loss of sleep, confirming a previous study in a group of patients referred for physiotherapy.¹⁹ The impact on sleep deprivation in patients with back pain has not been investigated here, but it is known that sleep deprivation (less than a mean of 6–8 hours per night) has adverse effects on an individual, including irritability and cognitive impairment.²⁰ In addition, the presence of “ever present” night pain appears to have a relationship with the ODI, VAS, and HADS scores. A question on sleeping forms part of 1 of 10 stem questions on the ODI. Therefore, it is not surprising that those patients with “ever present” night pain who report disturbed sleep have higher ODI scores than both patients who do not report sleep disturbance and those who have “only occasional pain.” A similar pattern is observed for the VAS, showing that average pain levels during the last week are also higher in the patients with “ever present” night pain. In addition, patients with “ever present” night pain appear to have worse psychologic scores, as represented by the HADS score.

A study in which 38% of patients presenting to general practice with lumbar pain were shown to have a

psychologic disorder, and cited pain at night to be one of the factors associated with the existence of the psychologic disorder.¹⁵ Whether the night pain directly contributes to the psychologic disorder or the psychologic disorder is responsible for some of the night pain, is not known. The relationship of night pain with the VAS and HADS score raises the question of the role of improved treatment of night pain as a method for reducing low back pain-associated distress and disability.

Lumbar night pain does not only have a significant impact on the patient but affects referral to the clinic. Patients often seek referral because of night pain²¹ and then the symptom is often cited as a reason for urgent referral from the general practitioner. Current guidelines in the United Kingdom²² suggest that a patient is seen within 2 weeks if neoplasia is suspected, and if every patient with lumbar night pain was seen during this time, implications would be enormous. This effect has an impact on radiology resources. In our back pain triage clinic, we perform MRI on 27% of all patients attending. This percent increases to 61% of those patients with “any night pain” and nearly all patients with “ever present night pain.”

We did not find any serious pathology in patients with “ever present” night pain, but we have shown that night pain can be associated with many conditions that are known to have an increased incidence of back pain. This result confirms the findings of earlier studies describing night pain in conditions such as spinal stenosis¹² and disc prolapse.¹³ Indeed, we have shown that “simple” disc degeneration is a common finding in patients with night pain and, particularly, in those with pain every night. Because we did not find any cases of serious pathology, we are not able to produce diagnostic test statistics by constructing a 2×2 table. However, it is important to emphasize that although night pain has been described to have a high incidence in patients with known serious pathology, it is not a specific marker for this, and, therefore, the presence of night pain *per se* should not be used alone as a “red flag” to indicate serious spinal pathology in a population referred from general practice. Indeed, a metaanalysis of patients presenting to general practice with lumbar night pain concluded that no particular symptom, other than the weak association between getting up at night and ankylosing spondylitis, was sensitive or specific for any particular condition that may cause back pain.²³

Further studies are required to clarify how the presence or absence of night pain may guide the clinical decisions in which there is potential for concern. In particular, it would be interesting to know the prevalence of night pain in defined populations of known pathology (e.g., spinal metastases, spinal infection, spinal stenosis, disc prolapse) to evaluate further the importance of this symptom. For example, if all patients with metastatic disease of the spine have “ever present” night pain, then the absence of this symptom would exclude this diagnosis. In addition, it is probably important to classify the

nature of this pain (e.g., Is it worse at night? Is it only at night? Is it different from pain during the day, and if so, how?). McCoombe *et al*,²⁴ using likelihood ratios analysis, showed that pain that was worse at night compared to the day was more likely to suggest an underlying problem, but the association was still weak. Although the current guidelines do not consider particular factors in favor of serious pathology, neither do they suggest that the presence of more than one factor increases the probability of serious spinal disease, it is vital that the clinician considers other factors (e.g., age, previous medical history, family history, smoking history) when reviewing a patient with lumbar night pain to give an overall impression and plan further investigation.

■ Conclusions

Lumbar night pain should not be ignored. It is an important symptom for the patient and occurs in many types of pathology that can produce back pain. However, in isolation, the presence of night pain *per se* is not a specific marker for serious spinal pathology, and other factors need to be considered before a priority appointment or further investigation is instigated.

■ Key Points

- Night pain is a frequent symptom in patients presenting to a back pain triage clinic.
- It is an important symptom for patients.
- Patients with night pain have higher Oswestry, VAS, and HADS scores than those who have no night pain.
- Night pain *per se* is not a specific marker of serious spinal pathology in a back pain triage clinic.
- It raises the question regarding better treatment of night pain in this population.

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