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Characteristics of pain in hospitalized medical patients, surgical patients, and outpatients attending a pain management centre

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Editor's key points

- This small, single-centre study found that acute and chronic pain, anxiety, and depression were similar in hospitalized medical and surgical patients.
- However, the assessment of pain in medical patients was often unreliable and they were less likely to receive appropriate analgesics.
- Pain in medical inpatients may be under-recognized and under-treated.
- More, larger studies are needed.

Background. The characteristics and psychological impact of pain suffered by medical inpatients has been relatively under-investigated. The aim of this study was to compare the pain experience of medical, surgical inpatients, and patients attending a pain management centre. Some aspects of the quality of pain scoring and prescribing were also audited.

Methods. Medical inpatients with significant pain (moderate or severe pain on a verbal rating scale) were assessed using a battery of psychometric questionnaires. Comparator samples of surgical inpatients and patients attending the pain management centre were recruited.

Results. The prevalence of significant pain did not differ between the medical group ($n=37$) and the surgical group ($n=38$) (16.7% and 19.9%). Chronic pain was common in the medical group (54%) and the surgical group (50%). There were no differences in psychometric variables between the medical and surgical groups. Clinically significant scores for anxiety and depression (HADS ≥ 11) were common in all groups (30–38%). There was less concordance between patient-reported pain scores and nurse-recorded pain scores in the medical group than the surgical group and analgesic prescribing differed between the two groups.

Conclusions. The characteristics of pain in the medical and surgical groups were similar, with high levels of anxiety and depression. The pain management group differed from the inpatient groups, with higher levels of psychopathology and poorer coping. These findings provide some insight into the complex nature of pain in hospital inpatients, and may inform where limited resources should be utilized to provide greatest patient benefit.

Keywords: Acute pain services; medical psychology; pain; pain measurement

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Pain is common and often under-treated in hospital inpatients.[1] Surgical inpatients are the focus of pain management teams in the majority of institutions.[2] However, it is becoming accepted that pain is equally common and problematic in medical inpatients.[3 4]

Previous studies have revealed poor pain relief in medical inpatients, particularly for pain not of musculoskeletal origin.[5] The prevalence of unbearable pain is similar among surgical and medical inpatients, but this is often not addressed in the latter group.[6] Although there is evidence for the efficacy of specific analgesic techniques in some painful medical conditions, there is little information to guide the development of pain management services for medical inpatients.[7 8]

Thus, our objective was to characterize and compare pain suffered by medical and surgical inpatients and patients attending a pain management centre using validated psychometric questionnaires.[9] Questionnaires are commonly used to assess outpatients with chronic pain, but are rarely used in acute pain studies or applied to inpatient groups.[10] We were interested to discover how the characteristics of pain in medical inpatients compared with those in patients after surgery. We also studied a group of patients attending the pain management programme (PMP) as these patients by definition have chronic pain and high levels of psychological dysfunction.

We also audited some aspects of the quality of pain scoring and prescribing for hospital inpatients. Knowledge of the characteristics of inpatient pain and the quality of assessment and prescribing are prerequisites to developing effective pain management services.

Methods

Ethics approval

The study was conducted at Derriford Hospital in accordance with the Research Governance Framework for Health and Social Care, Second edition (2005), in compliance with the principles of GCP. It was sponsored by Plymouth Hospitals NHS Trust (PHNT) and approved by the National Research Ethics Service Committee South West and the PHNT Research and Development Department. Written informed consent was obtained from all subjects after a cooling-off period.

Patient population

Three groups of adult patients (aged $\geq$18) were invited to take part in the study: all patients on medical wards on a single day in May 2011; a sample of postoperative surgical inpatients (recruited between May 11, 2011, and August 11, 2011); and a sample of patients undergoing PMP assessment at the Plymouth Pain Management Centre (recruited sequentially from May 18, 2011, to July 20, 2011). The intention was to collect data from all medical wards on 1 day in May 2011. However, 3 days were required as two medical wards were closed due to an outbreak of diarrhoea and vomiting. The majority of the psychometric questionnaire data sets were collected on a single day (32/37).

Inclusion and exclusion criteria

The key inclusion criterion was patient-reported moderate or severe pain on a verbal rating scale of none, mild, moderate, or severe, at any time during the preceding 24 h. Exclusion criteria were mild or absent pain during the prior 24 h, patient refusal, inability to communicate or read and understand the study documentation, or inability to give informed consent. Patients in high dependency and intensive care areas including the emergency department were not approached.

Conduct of the study

The data collection team included consultant pain specialists, trainee anaesthetists, research nurses, and medical students. Before the start of the study, all team members were trained in the data collection process and technical terms such as chronic pain and neuropathic pain were defined. All medical and surgical inpatients able to communicate verbally were assessed for moderate or severe pain. After verbal assent, patient characteristic data including sex and age were collected from all patients. The subject's worst pain experience in the last 24 h was recorded (on a verbal rating scale of none, mild, moderate, or severe). For those patients identified as having moderate or severe pain at any time in the last 24 h (termed significant pain from now on), advice was given to the clinical team to manage their pain by an appropriately qualified member of the research team. Patient information sheets were given at this stage. After a cooling-off period of at least 1 h, patients were approached to consent to completing psychometric questionnaires. The questionnaires were administered with minimal interference from the researcher, but occasionally assistance was required due to impaired visual acuity or to clarify written instructions.

Pain severity and impact, and patient coping strategies were assessed using the brief pain inventory (BPI), pain catastrophizing scale (PCS), and the pain self-efficacy scale (PSEQ). Patient mood was investigated using the hospital anxiety and depression scale (HADS) and optimism by the revised life orientation test (LOT-R). Appropriate permissions were sought to use the questionnaires.

The medical diagnosis or operation and the duration of pain were also noted. Chronic pain was defined as pain of $>$3 months duration. The type, location, and number of pains were categorized as in a previous published audit by Johnson.[5]

In addition to the pain questionnaires, some aspects of patient care were also audited. Analgesic use before hospital admission was recorded and inpatient analgesic prescribing was transcribed from the drug chart. Concordance between patient-reported and nurse-reported pain scoring was assessed, by comparing the patient-reported worst pain score over the last 24 h with pain scores as recorded on the ward observation chart.

Data handling

Findings were entered onto numbered case-report forms (CRF) and transferred to an Excel spreadsheet. No patient-identifiable data were entered onto the spreadsheet, which was stored on a password-protected computer. Paper CRFs were stored in a locked filing cabinet in a locked office and contained no patient-identifiable data. Consent forms were stored separately. Collection and storage of data was in accordance with the Data Protection Act 1998. Archiving of the study data and essential study records will be in accordance with the Sponsor's Standard Operating Procedure.

Statistical methods

Patient characteristic data were compared using appropriate parametric tests [χ^2, analysis of variance (ANOVA), or *t*-test]. Analyses were carried out within the medical and surgical groups to detect differences in psychometric variables between patients with and without chronic pain, between patients with a single pain *vs* multiple pains, and between male and female patients. An independent-samples Mann–Whitney *U*-test was applied to detect these differences. Statistical significance was assumed at $P<0.05$. The data were analysed using SPSS Statistics version 19.0 software (SPSS Inc., Chicago, IL, USA).

The cross-sectional sample was obtained from all medical inpatients in Derriford Hospital, Plymouth, UK, over 3 days in May 2011. The sample size for collection of detailed psychometric data was limited to all medical inpatients meeting the inclusion criteria and who gave consent. The surgical and pain management samples were collected over several time points. As differing techniques were used to select