



Research paper

A retrospective observational study investigating the relationship between somatisation and pain perception in subjects with intractable pain



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ABSTRACT

Introduction: The aim of this study was to investigate the relationship between somatisation and perception of pain in subjects classified as having intractable pain.

Methods: Somatisation features were assessed in 526 intractable pain patients, referred to a psychosomatic clinic between 2002 and 2014 due to the failure of at least 2 pharmacological and 1 surgical/invasive or rehabilitative interventions. The somatosensory amplification (SSAS), illness behaviour questionnaire (IBQ) and the symptom checklist-90 (SCL-90) Somatisation subscale and the other SCL-90 subscales were used to measure psychopathology. The IPQ and cold pressor test (CPT) was used to investigate the perception of clinical and evoked pain stimuli, respectively.

Results: The principal predictor of an increase in pain perception was age, which was also associated with a greater effect of SSAS and IBQ affective disturbance scores on sensorial and affective dimensions and intensity of pain, and sensorial, affective and cognitive dimensions of pain, respectively. However, high SCL-90 somatisation scores were predictive of increases in sensorial, affective and cognitive dimensions of clinical pain and a lower experimentally induced pain threshold independently of both age and gender. No other psychopathological dimension predicted the increased perception of pain in patients with intractable pain.

Conclusions: As well as contributing to the body of knowledge on gender bias in pain, our results indicate that is not solely the source lesion that makes pain difficult to treat, but rather individual components of pain perception, including sociodemographic and somatisation features, whose influence should therefore be recognized and treated appropriately as routine.

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1. Introduction

There is some disagreement regarding the precise definition of intractable pain. However, it is generally considered to be a state of pain whose source cannot be removed, or which persists despite a long history of various interventions to control it, including surgery, nerve blocks, physical rehabilitation, and weak opioids [1]. Sufferers describe their pain as constant and debilitating, and powerful enough to interfere with daily life.

In addition to a history of treatment failures, when chronic pain patients come to a tertiary pain clinic (the last resort in the national health system for treatment of pain) they have been shown to display greater than average emotional, maladjustment and psychiatric complications [2], as well as behavioural and physical disabilities that increase suffering and make pain more difficult to

treat. In other words, somatisation, the manifestation of emotional problems as bodily symptoms [1], may be implicated in cases of intractable pain.

Being related to emotional components in origin, somatic symptoms are poorly controlled by the usual medical treatments for pain, and lead afflicted individuals to consult a series of health professionals (*doctor shopping*) in the conviction that they have a physical disease, despite reassurances to the contrary [3–6]. Patients who take on this “sick role” are said to display so-called abnormal illness behaviour (AIB), which studies show is closely related to somatisation and medically unexplained syndromes [7] and leads to the perpetuation of pain and a worsening of treatment response [8].

A link between somatisation and poor outcomes has been documented in chronic low back pain (LB) [9] and a greater association between somatisation and pain has been found in subjects with LB [8,10], as well as headache [11] and migraine (HP) [12], and fibromyalgia (FM) [13]. In fact, the overlap of clinical and

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somatisation features in FM is so strong that some researchers have suggested that FM is in fact a somatoform disorder [14]. Indeed, while investigating DSM V criteria for the new classification of somatoform disorders, Wolfe and co-workers [15] found an increased, “disproportionate” or “excessive”, perception of symptoms (DSMV criterion B for somatic symptoms disorder) in FM subjects, as compared to rheumatoid arthritis (RA) and osteoarthritis, but suggest special care be taken when interpreting this criterion.

Scales to measure the AIB component of chronic pain in LB have been proposed [16–18], and experimental and clinical pain studies have shown a gender-related difference in the prevalence of somatisation [19,20], with females tending to somatise more, tolerate pain less (low pain threshold), and display a greater number of clinical pain syndromes [20]. In order to shed further light on this topic, we set out to investigate how somatisation affects pain perception, interacting with clinical, psychological and/or sociodemographic factors making pain difficult to manage.

2. Method

2.1. Study design

In this retrospective observational study, the psychopathological and clinical dimensions of chronic pain were assessed in subjects referred to the Pisa GIFT Institute of Integrative Medicine Psychosomatic Medicine Centre between 2002 to 2014. Patients' pain thresholds and tolerance in response to a cold pain stimulus were also measured, and the research was conducted in accordance with the Declaration of Helsinki ethical principles for medical research involving human subjects. Accordingly, all subjects' data was stored on the database under an untraceable alphanumeric code.

2.2. Sample

2.2.1. Eligibility criteria for intractable pain subjects

Chronic pain subjects who met the following eligibility criteria were considered in this study: i) pain persisting for over 6 months (chronic pain) and referral to the psychosomatic consultation centre due to ii) resistance to at least three common analgesic drug treatments for pain (or two in the case of opioid-based drugs), and iii) failure of at least one surgical or invasive procedure (nerve block, cortisone infiltration, facet joint injection, trigger point injection, local anaesthetic injection etc.) and/or a specific physical rehabilitation programme. Thus defined as having intractable pain, all subjects also iv) had to have consulted at least one medical specialist (secondary health professional) before presenting to the psychosomatic medicine centre.

Participating subjects were given a comprehensive psychological assessment, and their pain threshold and tolerance were evaluated by means of cold pressor pain testing (CPT). The physician collected patients' clinical information, and conducted a physical examination to explore tender points and neurological signs of neuropathic pain. All clinical data and questionnaire responses were collected and stored on a dedicated database in a manner guaranteeing patient anonymity.

3. Procedures

3.1. Psychological measures

3.1.1. SCL-90 (Symptom checklist-90)

The SCL-90 test is a self-administered questionnaire designed to measure psychopathology [21]. It consists of 90 items scored on the Likert Scale from 0 (not at all) to 4 (very much). Nine symptom

dimensions are assessed via the relevant subscales, namely: 1) Somatisation, which measures disturbances arising from the perception of physical dysfunction; 2) Obsession-Compulsion, i.e., thoughts, impulses and actions experienced as uncontrollable and unintended; 3) Interpersonal Sensitivity, i.e. feelings of inadequacy and inferiority to others; 4) Depression, which considers a wide range of symptoms accompanying a depressive syndrome; 5) Anxiety, the manifestation of symptoms and behaviours linked to great anxiety, 6) Hostility, including thoughts, feelings and actions characteristic of a state of anger, irritability or resentment; 7) Phobic Anxiety, a persistent but irrational and disproportionate fear response to people, places and opportunities, resulting in specific avoidance/escape behaviours; 8) Paranoid Ideation, a thought disorder characterized by unjustified suspicion, fear of loss of autonomy, and hostility; and 9) Psychoticism, a continuous experiential state characterized by withdrawal, isolation and schizoid lifestyle, including some primary symptoms of schizophrenia (hallucinations, strangeness of thought). The SCL-90 also features three global indices used to provide measures of overall psychological distress: the Global Severity Index (GSI), the Positive Symptom Total (PST) and the Positive Symptom Distress Index (PSDI).

3.1.2. SSAS (Somatosensory amplification scale)

This tool quantifies the propensity of a subject for somatosensory amplification, i.e. the tendency to experience intense, noxious and disturbing somatic sensations [22]. It consists of 10 statements scored on the Likert scale (0 = “never” = 1 “a little” 2 = “moderately”, 3 = “almost always,” 4 = “always”), and the higher the score (maximum 40), the greater the tendency to somatic amplification.

3.1.3. IBQ (Illness behaviour questionnaire)

IBQ [23] is a self-assessment questionnaire used to investigate behaviour in disease through seven subscales or factors, identified by factor analysis, which respectively measure: 1. General Hypochondriasis (GH), a fearful attitude towards disease, despite an awareness of the disproportionate nature of this concern; 2. Disease Conviction (DC), the conviction of having a physical, rather than mental, disease, and a reluctance to accept any kind of medical reassurance; 3. Psychological Perception vs. Somatic Disease (P/S), a bipolar scale expressing the tendency of the subject to consider the problem from a psychological (higher scores) rather than somatic (lower scores) perspective; 4. Affective Inhibition (AI), the level of disclosure of feelings (especially negative ones); 5. Affective Disturbance (AD), the presence of anxiety, depression and/or tension; 6. Denial (D), the tendency to deny the stresses of life and ascribe a complaint solely to physical illness; and 7. Irritability (I), an attitude characterized by interpersonal hostility (high scores). The questionnaire also features two subscales for scoring two second-order factors known as Affective State (AS) and Disease Affirmation (DA), respectively. These scores, calculated via dedicated formulas, provide a more global picture of abnormal illness behaviour (AIB).

3.1.4. Somatisation dimensions

As previously mentioned, somatisation features are associated with subjects taking on a “sick role”, a particular behaviour which may lead to subjects' emotional needs predisposing them to treatment resistance.

Diagnosis of the new concept of somatoform disorders, called somatic symptom disorder in DSM V [24], therefore, cannot merely consider the medically unexplained, i.e. somatic, symptoms that cause discomfort (criterion A), but must also take into account their connection to thoughts, feelings, and behaviours associated with health concerns (criterion B), which are all easily identifiable using the IBQ.

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