Chronic pelvic pain (CPP), a common condition particularly in reproductive-aged women, causes disability and distress, and significantly compromises quality of life and affects healthcare costs. The pathogenesis of CPP is still poorly understood and consequently poorly managed. Furthermore, the lack of a consensus on the definition of CPP greatly hinders epidemiological studies. Patients present with various associated problems, including bladder or bowel dysfunction, gynaecological pathologies or sexual dysfunction, and other systemic or constitutional symptoms. Other conditions, e.g. depression, anxiety and drug addiction, can also coexist. Effective management presupposes an integrated knowledge of all pelvic organs and other systems, including musculoskeletal, neurological and psychiatric systems. The key to treating CPP is to treat it as the complex disease it is. Treatment options range from conservative medical therapy to surgical intervention, and are primarily directed towards symptom relief. Unsatisfactory results of treatment render this condition a frustrating problem for both patients and physicians.

KEYWORDS
chronic pelvic pain, diagnosis, treatment, quality of life

DEFINITION OF CHRONIC PELVIC PAIN (CPP)
CPP has been variously defined in previous reports; the most common definition is nonmalignant pain perceived in structures related to the pelvis, constant or recurring over a period of ≥6 months. In some cases it might be associated with negative cognitive, behavioural and social consequences (a new definition) [1]. This definition is in line with the most recent recommendation for terminology proposed by the ICS [2] and the classification of the International Association for the Study of Pain [3]. Despite this, the lack of consensus on the definition of CPP greatly hinders epidemiological and comparative studies.

EPIDEMIOLOGY AND COSTS
It is difficult to give a precise estimate of the prevalence of CPP, because this condition is still under-studied. The CPP prevalence rate of 3.8% in British women is similar to the prevalence of migraine headaches (2%), back pain (4%) and asthma (3.7%); the annual prevalence of 38/1000 women aged 15–73 years was comparable with that of other chronic conditions mentioned above [4]. In the USA a telephone survey showed that 40% of 5463 women aged 18–50 years complain of CPP [5]. Most cases are managed by primary-care physicians and only 40% of all women had ever been referred to a specialist for their pain. In the USA the estimated direct medical costs for outpatient visits for CPP (women aged 18–50 years) is ≈$881.5 million per year [6].

AETIOLOGY
Like many other chronic pain syndromes, CPP is a multifactorial condition, with possible sources of pain located in the reproductive, urinary or gastrointestinal tract, CNS, or in the musculoskeletal structures (Table 1). In a large primary-care database from the UK it was found that gastrointestinal disorders were a common cause of CPP (37%), followed by urological (31%) and gynaecological disorders (20%). Myofascial disorders contributed an additional 12%, with endometriosis accounting for ≈30% of pain from this cause [7]. Often there can be many contributing factors in one patient. In 70% of patients seen by a pain specialist, pain apparently had more than one cause [8]. The absence of abnormal findings and the lack of evidence of infectious, allergic or oncological causes led to suggestions of a psychological origin of this condition. Pelvic floor overactivity seems to be a major factor contributing to CPP. Pain also causes anxiety and distress, which aggravates muscle contraction [9]. The dysfunction of the pelvic floor muscles can have different origins; pathologies involving structures of the pelvic floor (i.e. cystitis, vulvo-vestibulitis), behavioural factors (dysfunctional voiding) or traumatic experiences (physical or sexual abuse or affective deprivation). Associations between sexual abuse specifically and CPP were found in some studies [10,11], but not in others [12]. A multidimensional approach is necessary to evaluate women with CPP [13–15].

QUALITY OF LIFE (QoL)
Living with chronic pain has a significant impact on QoL, as well as on emotional and sexual functioning. CPP is a long-standing condition and women with it are at greater risk of low self-esteem, depression or anxiety, low marital satisfaction and sexual dysfunction, and somatic symptoms [16]. Recent research suggested that many women become dissatisfied with the care they receive and refrain from seeking help, despite continuous symptoms [17]. As CPP represents a widespread problem involving young women, it would be important to address and investigate it with objective QoL instruments. To explore this issue, Neelakantan et al. [18] systematically analysed 19 relevant articles and found the generic Short-Form Health Survey Questionnaire was the most frequently used. However, it is clear that disease-specific QoL instruments are needed.
QoL assessment instruments that address sexuality issues should be included in patient counselling. Recently, Price et al. [19] described the attitudes of women with CPP attending gynaecology clinics towards their consultations, and determined ways in which their healthcare can be improved. Although it is obvious that physicians need to take time to understand and acknowledge their patients’ problems and to discuss them, this might present particular problems in the absence of abnormal findings. Women with unexplained pain might benefit from knowing that their symptoms are common, that they have a benign course, and that there are simple things that they can do to help themselves. An integrated, rather than pathology-centred, approach to care would improve outcomes and QoL in women with CPP.

DIAGNOSIS

Only 40% of all women had been referred to a specialist for their pain [6]. Currently, CPP in most patients is managed by primary-care physicians. However, no guidelines exist that illustrate the patterns of diagnosis and subsequent specialist referral in primary care. The type of diagnostic label received is likely to depend on various factors, including the age of the woman, duration of symptoms, presence of gastrointestinal or genitourinary tract involvement, the results of any investigation, and the response to any medical treatments. Patient history is important in CPP. Because of the complex aetiology and, often, the presence of associated disorders, a general approach with a thorough history that directs further evaluation and appropriate consultations is needed. Psychological traits and marital satisfaction, sexual history and behaviour and somatic characteristics should be evaluated.

Medical history should investigate the primary characteristics of pain (Table 2).

An abdominal and pelvic examination will exclude any gross pelvic pathology (tumours, scarring and reduced uterine mobility) and a musculoskeletal evaluation represents an important component when assessing women with CPP. An important sign is the levator ani spasm, confirmed by palpating the muscle spasm, and identifying trigger points in the levator region via intravaginal examination. Bladder dysfunctions are investigated by urodynamic or video-urodynamics, e.g. uroflowmetry, residual urine measurement, cystometry, external urethral sphincter electromyography, and a pressure-flow study. Vaginal swabs and pelvic ultrasonography are routine procedures. Once a structural cause has been excluded, a neurological-psychological opinion is often sought [20]. Although patients can be referred to a gastroenterologist, a urologist/urogynaecologist, or a physical therapist, it is often more effective if one specialist takes responsibility for the patient and orchestrates her care. Nevertheless, consultation with different specialists is very important, especially before considering invasive procedures. Laparoscopy is the most useful invasive investigation to assist in the differential diagnosis and to exclude pelvic pathology. This procedure accounts for >40% of gynaecological diagnostic laparoscopies, costing an estimated $2 billion annually in the USA in direct and indirect costs [21]. However, 35–60% of these laparoscopic procedures showed no evidence of pelvic pathology [22].

CLINICAL COURSE OF CPP AND IMPLICATIONS

The review of current reports shows that, despite treatment procedures, symptoms
of CPP often persist for years. It also shows that the number and type of diagnostic procedures, and the likelihood of being referred to a specialist, depend on the age of the woman and the duration of her symptoms [23].

In the study of Zondervan and Barlow [4], still cited, 28% of all women and 26% of those who had symptoms lasting for >2 years were not properly diagnosed. One study presented an analysis of interviews with 40 New Zealand women in which they reflect on ‘how come’ they have CPP [24]. Women interviewed in this study reported problems with diagnosis, communication with the doctor, lack of information, and inappropriate treatment. Themes of particular concern were that doctors negated the woman’s experience of pain and its meaning to her, and this negation affected her ability to take responsibility for her condition; the medical ‘extraction’ of symptoms through technology overshadows the woman’s discursive interpretation and voicing of her symptoms; and the concept of ‘pelvic pain without organic pathology’ implies an absence that becomes filled with the spectre of neurosis or psychological problems.

THE THERAPY

The management of CPP needs a multidisciplinary approach and must be tailored to the individual patient [25]. A good relationship should be established between the physician and the patient. Objectives should be focused toward restoring normal function (minimal disability), better QoL, and preventing relapse of chronic symptoms. Physical therapy, NSAIDs and muscle relaxants, with or without psychological support, are the first choice in these patients.

PHARMACOTHERAPY

Pharmacotherapy consists of symptomatic therapy to stop or reduce the severity of acute exacerbation of pain, and long-term therapy for chronic pain. It focuses on the use of muscle relaxants, tricyclic antidepressants and NSAIDs (Table 3). The selective serotonin-reuptake inhibitors, e.g. fluoxetine, paroxetine or sertraline are also commonly prescribed by many physicians. We do not recommend their use without psychiatric counselling. Furthermore, the use of GnRH agonists has also been proposed, but until now no evidence of efficacy has been reported [26]. Although tizanidine might improve the inhibitory function in the CNS and can provide pain relief, it is not considered the standard of care. Long-term use and overuse of all symptomatic analgesics is to be discouraged because of the risk of dependence and abuse [27].

MINIMALLY INVASIVE TECHNIQUES

Various minimally invasive techniques, such as trigger-point injections or peripheral nerve blocks, are effective in selected patients [5]. Sacral nerve stimulation might be effective in the treatment of therapy-resistant pelvic pain syndromes linked to pelvic floor dysfunction [30]. A recent systematic review of the existing therapies for pelvic musculoskeletal problems discussed manual techniques, electrical stimulation or minimally invasive therapies such as local injection [31].

Surgery

Laparoscopy can be used as a diagnostic tool in patients with CPP; it seems to have a beneficial effect in women with CPP. Most commonly, diagnoses made via laparoscopy include endometriosis, pelvic adhesions and chronic pelvic inflammatory disease. Other diagnoses include ovarian cysts, hernias, pelvic congestion syndrome, ovarian remnant syndrome, ovarian retention syndrome, postoperative peritoneal cysts, and endosalpingiosis. Of laparoscopic procedures in gynaecological practice >40% are for the diagnosis of CPP, and >60% of women with CPP have at least one condition detectable by laparoscopy [32]. In a recent survey, laparoscopy results do not appear to affect either pain symptoms or QoL in the long term [33]. Thus, CPP remains unexplained in a third of women who have normal findings at diagnostic laparoscopy, and few QoL issues seem to improve because of the persistence of

| TABLE 3 Medical treatment of CPP |
| Treatment | Level of evidence/grade of recommendation | Comment |
| Pain relievers or analgesics (NSAIDs, COX2-selective drugs, opioids) | 3/C | First choice; anti-inflammatory action; not recommended as long-term treatment. |
| Neuropathic analgesics (tricyclic antidepressants, serotonin reuptake inhibitors) | 3/C | Amitriptyline as first-line |
| Muscle relaxants or spasmolytic Antibiotics | 3/C | Often in association with analgesics |
| Hormone treatments (GnRH agonists) | Not applicable | Limited role |
| COX, cyclooxygenase. | 3/C | Limited indication |
CPP after a negative (normal) laparoscopy [34].

CONCLUSIONS

Existing publications on CPP consists of small retrospective and uncontrolled observational studies. This represents a truly frustrating problem for patients and physicians. The correct treatment clearly lies with the aetiology of the CPP. Thus, the only key available currently is to treat CPP as the complex multifactorial disease it is. Properly designed and executed studies, and randomized, controlled trials are urgently needed.

CONFLICT OF INTEREST

None declared.

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Abbreviations: CPP, chronic pelvic pain; QoL, quality of life.