

Chronic pelvic pain in women

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1 Methodology

1.1 Sources

The following sources have been used for the literature search:

- 1966 to August 2007: Medline
- To November 2001: Psychlit/Psyndex
- 1983-2007: Annals of the German Society for Psychosomatic Gynaecology and Obstetrics

The search term used was chronic pelvic pain. Additional key words were used for special chapters to limit the search (e.g. endometriosis, pelvic congestion syndrome, bladder dysfunction, sexual abuse etc.). In addition, the references cited in the publications found were browsed and relevant publications included in the analysis. The national guidelines of renowned international gynaecological and obstetric societies were also searched via the Internet and taken into account in the drafting of the source text.

1.2 “Evidence”

All literature sources used were reviewed in terms of their level of evidence. The Oxford criteria for evidence-based medicine were applied (1). The level of evidence (LOE) is specified at the end of each reference.

1.3 Time frame

The source text was created in August 2007. An independent review by all authors with initial corrections was completed by the end of November 2007. On 19 January 2008, the first consensus conference was held in keeping with the requirements of a formal consensus process to create a level 2- AWMF guideline with the involvement of experts from the different medical societies. The source text, which had previously been sent to the corresponding experts, was discussed and corrected during the conference. The second consensus conference was held on 17 May 2008. The final submission of the source text on chronic pelvic pain in women is planned for August 2008. On this basis, an AWMF guideline has been created. After publication, the guideline will be valid for three years, after which an update is planned. The full methodology report is annexed (Annex 1).

1.4 Participating societies

The following societies and organisations were invited to the consensus conference by the DGPFPG under the coordination of Dr. med. Siedentopf:

- DGGG - German Society for Gynaecology and Obstetrics
- AGE - DGGG Working Group for Gynaecological Endoscopy (Reg. Soc.)

- AG II - DGGG Working Group for Infectiology and Immunology
- DKPM - German College for Psychosomatic Medicine
- DGPM - German Society for Psychosomatic Medicine
- DGSS – German Society for the Study of Pain
- DGU - German Society for Urology

2 Definition

2.1 Introduction

The fundamental problem in the analysis of chronic pelvic pain is to assign an unambiguous diagnosis to the symptom of persistent pain in the pelvic pain area. The difficulty is that the physical and psychological factors must be seen in combination and on a case-by-case basis.

2.2 Definition

There is currently no standardised international definition of chronic pelvic pain (CPP) (2-5). This is due to the complexity of the disease with its varying symptoms depending on the underlying cause. When selecting their patients, many studies base themselves on the duration of pain and define chronic pelvic pain as pain lasting for more than six months. Apart from the duration of pain, many studies also take account of the way the pain appears and distinguish cyclical, situational and non-cyclical pain. Which of the three forms of pain was used in the definition of chronic pelvic pain was up to the decision of each author. Another approach adopted by some publications is to include the location of the pain in the definition of chronic pelvic pain. Some studies include any pain in the abdomen below the navel, others distinguish between gynaecological, gastrointestinal, urological, neuromuscular or other pelvic pain and only include the symptoms they are interested in in the definition of chronic pelvic pain. Furthermore, some authors only define a condition as chronic pelvic pain if no organic pathologies were found in the patient. When considering and comparing studies, the definition used by the authors must be clearly identified and taken into account (2-4; 6). The definition used in this guideline and the source text is as follows:

Chronic pelvic pain in women is a persistent, severe and distressing pain lasting at least 6 months. It may occur cyclically, intermittently/situationally or chronically. It leads to a major reduction in quality of life. In some patients, physical changes/disorders can be regarded as the main cause, in others, the pain seems to be mainly caused by emotional conflict and psychosocial stress.

3 Classification and Coding

Chronic pelvic pain can be encoded on the basis of the underlying somatic and psychosocial causes according to the ICD 10 classification (Tables 1a-c). Possible psychological factors and behavioural influences (Table 1c; F54.-) or psychological comorbidities (Table 1a) must be encoded additionally in combination with medical disease factors (Table 1b-c) in patients with chronic pelvic pain.

Table 1a: Psychological disorders with chronic pelvic pain as a cardinal symptom

Diagnosis	ICD 10
Persistent somatoform pain disorder	F 45.4
Somatisation disorder	F 45.0
Non-differentiated somatisation disorder	F 45.1
Somatoform autonomous functional disorder of the lower gastrointestinal tract or the urogenital system	F 45.32 u. F 45.34
Affective disorders	F 31-F 34
Pain as a part of dissociative sensibility disorders	F 44.6
Adaptation disorders	F 43.2
Posttraumatic stress disorder	F 45.1
Schizophrenia, schizotypal and delusional disorders	F 20-29

Tables 1b: Gynaecological diagnoses with chronic pelvic pain as a cardinal symptom

Diagnosis	ICD 10
Endometriosis	N 80
Pelvic inflammatory disease	N 73.9
Adhesions	N 73.6

Table 1c: Further diagnoses with chronic pelvic pain as a cardinal symptom

Diagnosis	ICD 10
Irritable bowel syndrome	K 58.-
Interstitial cystitis (Bladder Pain Syndrome)	N 30.2
Fibromyalgia	M 79.7

Due to these diagnostic classifications, it is now possible to overcome the previous widespread dichotomy in regarding chronic pelvic pain as either with or without an organic pathology because the relative weighting of psychological and medical factors can now be taken into account (7).

It is assumed that 60 to 80% of the patients with chronic pelvic pain meet the diagnostic criteria of a persistent somatoform pain disorder (F 45.4) (8; 9).

According to ICD 10, the definition of such a disorder is as follows:

“The predominant complaint is of persistent, severe, and distressing pain which cannot be explained fully by a physiological process or a physical disorder and which occurs in association with an emotional conflict or psychosocial problems which are sufficient to suggest that they are the main causative influences. The result is usually a marked increase in support and attention, either personal or medical. Pain presumed to be of psychogenic origin occurring during the course of depressive disorders or schizophrenia should not be included here (10)”.

This definition is silent about the symptom duration required to warrant the diagnosis of chronic pelvic pain. In international and particularly Anglo-American literature, most authors specify a minimum duration of 6 months. Recent neurophysiological studies in the context of the pathophysiology of the chronification of pain support the idea that duration of 6 months can be regarded as a suitable diagnostic criterion since biochemical changes can be found at the level of the receptors after this time (11-16).

4 Epidemiology

A big problem in gathering epidemiological data about chronic pelvic pain is that there is currently no general international definition this disease (see Chapter 2). Due to the currently available data, it is therefore not possible to estimate the prevalence of chronic pelvic pain in the general population since most studies concern specific symptom complexes and specific disease causes. However, it is generally assumed that the prevalence of chronic pelvic pain in women is much higher than specified in the studies published so far.

In an epidemiological study published in 2006, the WHO has for the first time conducted a comprehensive international literature search to collect data on the international prevalence of chronic pelvic pain (17). Here again, however, the 178 publications covering a total of more than 450.000 patients were assigned to three different symptom groups of chronic pelvic pain. These included cyclical disorders relating to dysmenorrhea, chronic dyspareunia and non-cyclical pain in the lower abdomen. The publications on chronic pelvic pain were allocated to these three groups and the data of the different groups were analysed separately. The prevalence figures of the different publications varied widely. The authors attributed this to very big

quality differences between the studies. The high quality studies (23% calculated that dysmenorrhoeic complaints had a prevalence of 17 to 81%, while dyspareunia had a prevalence of 8 to 22% and the prevalence of patients with non-cyclical chronic pelvic pain ranged from 2 to 24%. Generally speaking, most data on the prevalence of chronic pelvic pain originate from countries that are highly developed by WHO standards, whereas underdeveloped countries have so far contributed hardly any data on the prevalence of chronic pelvic pain.

In the US literature, it is assumed that 15% of all women are affected by chronic pelvic pain and that around 10% of all gynaecological consultations are made because of such disorders (18-22). These figures are mainly based on two US surveys on the prevalence of chronic pelvic pain in the general population and data from the American Pain Society. In a telephone survey, Mathias et al. found that 14.7% (773/5263) of women aged between 18 and 50 years had suffered from pelvic pain over more than 6 months (18). They only included patients with non-cyclical pain in this survey. Only in 39% (301/773) of these women had a somatic diagnosis been made by their doctors (e.g. endometriosis, infection, irritable bowel syndrome etc). In other words, in 61% of the women reporting non-cyclical chronic pelvic pain over more than six months, the cause of pain was unclear. A further American survey by Jamieson and Steege, in which female patients and their healthy female companions aged between 18 and 45 were asked in various medical institutions, showed a prevalence of 32% (185/581) for the occasional occurrence of chronic non-cyclical pelvic pain. 7% (42/581) of the women said they were suffering regularly or constantly from this pelvic pain (19). The fact that 39% of all women are suffering intermittently or constantly from non-cyclical pelvic pain and that 90% or 46% of the women participating in the survey reported occasional or regular complaints relating to dysmenorrhea or dyspareunia shows the complexity of this disease and the difficulty of accurately assigning the patients to the diagnosis of chronic pelvic pain.

In Europe and Germany, the data on prevalence are also scarce. In various publications, Zondervan et al. showed that the majority of all studies only recorded the prevalence of individual symptom groups such as dysmenorrhea, dyspareunia, gastrointestinal complaints or urogenital complaints. However, the overall prevalence of chronic pelvic pain cannot be estimated based on the available data (3; 23-25). The authors found only one British study estimating the prevalence of chronic pelvic pain in Great Britain. In this study by Mahmood et al. with 559 women undergoing laparoscopy and exhibiting no pathological organ changes, the prevalence of chronic pelvic pain without a menstrual or coital association was 39% (26).

A follow-up analysis comprising more than 250.000 women aged between 18 and 50 years showed an annual prevalence of 37/1000 women with a strong rise with increasing age. The study was only based on GP visits due to chronic pelvic pain which were reported as part of a British survey on primary medical care. Women who did not present to a doctor could therefore not be included, so that the real prevalence in the general population is probably even higher and comparable with diseases such as migraine, asthma or back pain (3; 25).

No reliable epidemiological data are available for Germany at the moment. The only prevalence study on chronic pelvic pain so far in Germany has found an age-associated frequency of 12% and a more frequent occurrence in young patients (27). In this study, the prevalence of chronic pelvic pain in women below 40 years was 15%, whereas only 8% of the women aged 60 and above were affected. This study was carried out as part of a representative survey among 1146 women aged between 14 and 92.

To conclude this point, the majority of the authors agree that the data on the prevalence and incidence of chronic pelvic pain are inadequate and further targeted prospective epidemiological studies are required in order to fully appreciate the real incidence and relevance of this still rather poorly understood disease.

5 Pathophysiology

5.1 Historical development

The heterogenous definition of chronic pelvic pain (see Chapter 2) reflects the fact that, in the past, the disease was described and viewed differently. At the beginning of the 1980s, Artner reported that there were more than 150 synonyms for the term chronic pelvic pain (28). The frequency of the corresponding symptoms among the female population meant that scientists around the world started looking for their causes at an early stage.

In an article published in 1964, Prill gave an overview of the historic development of the disease concept (29). He explained that in 1761, Morgagni derived pelvic pain from the alleged seat of the "hystera" in the uterus. When the era of Virchow's cellular pathology began in 1855, the medical community favoured a locally inflammatory genesis although no evidence of a pathogenic focus of inflammation was found. At that time, doctors began distinguishing between patients with and without an organic pathology (30-33). This dichotomy about chronic pelvic pain still persists in research to the present day.

In 1903, Freud described a “parametritis posterior chronica” in the context of dysmenorrhea. After 1920, hormonal causes were discussed in the context of osteomalacia. Even at the time, sexual, digestive and circulatory disorders as well as headaches and dysmenorrhea were frequently described. They were interpreted as a general functional disorder called “spasmophilia genitalis”. In the 1940s, Taylor postulated a congestion fibrosis syndrome with subsequent organic changes (34-36). He suspected a disorder of the autonomous nervous system influenced by psychological factors. His biographic investigations led to the assumption that a maturation disorder following child age deprivation may lead to a neurotic deviation and development of symptoms, especially in a so-called “stressful life situation”. In 1951, the congress of German gynaecologists in Bad Pyrmont agreed that psychogenic and sociological factors should be considered as possible causes of this general vegetative syndrome (29).

As a result, the study of psychosocial components became increasingly important in the following decades. In the 1980s, Molinski suggested that a masked depression is the cause of the pain (37). However, in his article, he only talks about pain patients where no organic pathology could be found. Magni et al. (38; 39) arrived at the same conclusion. They examined patients with and without organic pain causes and compared them with asymptomatic controls. There were 30 patients in each study arm. The patients without an organic cause scored higher on the Zung Self-Rating Depression Scale (SDS). In comparison with the control group, both groups of symptomatic patients reached higher values for somatisation. In the 1980s, Richter, Molinski, Nijs and Dmoch developed therapeutic concepts in Germany which were based on psychosomatic research (40). They had regular conversational meetings with the patients in order to achieve a “psychosomatic switch”. However, they failed to carry out controlled studies confirming the effectiveness of their approach. Early, largely descriptive studies used the classic psychoanalytical assumption that the pain symptoms are the expression of subconscious conflicts. This view has now been largely abandoned (41). A French publication of 1981 interpreted pelvic pain as a defensive mechanism (42).

Another model of chronic pelvic pain is the somatoform pain disorder for example based on the attachment theory. It was founded by J. Bowlby and has been further developed and investigated intensely in the last 25 years. The attachment theory has contributed key elements to the understanding of chronic pain.

The scientific and clinical approach adopted so far has been criticised by many authors. McGowan et al. conducted telephone interviews with 75 general practitioners in Great Britain to find out about the diagnostic work-up and treatment strategies they used for chronic pelvic pain. They found that the doctors' approach, which was rather consistent if the pain had an organic basis, became very variable when the cause of pain was not organic. For this reason, a multimodal approach including various factors is now increasingly favoured (see Chapters 7.8 and 8.6). For example, Savidge and Slade in their review demand an integrative bio-psycho-social model also taking into account the insights of other especially psychological and psychiatric disciplines (44). In her publications mainly on the sociological background of chronic pelvic pain, Grace also demands that we should abandon the traditional dichotomy and develop an integrative model (30; 45; 46).

5.2 Pathophysiology of chronic pelvic pain

Studies like the one by Lutzenberger et al. on the relevance of neuronal plasticity for the chronification of back pain (55) are not known on the subject of chronic pelvic pain. However, it is now assumed that during the development of chronic pain, the nervous system with its receptors is influenced among others by chemical and inflammatory mediators as well as hormones (56; 57). The number of studies on this topic in the field of chronic pelvic pain is limited. Below, we shall discuss some studies on these mediators.

5.2.1 The significance of cytokines

Rapkin et al. tried to find out whether cytokines are involved in the genesis of chronic pelvic pain. To this end, they sampled peritoneal liquid during laparoscopy and tested it for Interleukin-6. They found no correlation between the Interleukin-6 level and the magnitude of the chronic pelvic pain (58). Buyalos et al., however, did find a strongly increased IL-6 concentration among patients with pelvic adhesions compared to a control group of women desirous of sterilisation (59). However, Interleukin-6 was not increased in patients with endometriosis.

5.2.2 The significance of prostaglandins

Rapkin et al. also investigated in earlier studies whether patients with chronic pelvic pain have a higher amount of cyclooxygenase and lipoxygenase products in their peritoneal liquid (60). No correlation was found. In an even earlier study (Dawood et al. 1984), the peritoneal liquid was tested for prostaglandin E2, prostaglandin F2-alpha, 6-keto-prostaglandin F1-alpha and thromboxane B2 (61). The liquid from 49 women was sampled. Only patients with endometriosis showed a significantly higher concentration of 6-keto-

prostaglandin F1-alpha compared with asymptomatic patients. The concentration was not different in chronic pelvic pain patients. The problem with this study is the small group size (asymptomatic women: n=10; endometriosis patients: n=16; women with PID or tubal occlusion: n=19; pelvic pain patients without a visible pathology: n=4). Ruifang et al. studied the possible relevance of prostaglandins in patients with pelvic varicosity (62). They found that these patients had increased 6-keto-prostaglandin-1-alpha values in their peritoneal liquid.

5.2.3 The significance of the neurokinin Substance P and CGRP

Substance P and CGRP (calcitonin-gene-related peptide) have been suspected to be important inflammation mediators released at the neuronal level (63). Another potential cause of chronic pelvic pain is a special way sensitive afferences in the spinal chord as well as in the cortex are processed in the patients (64; 65).

5.2.4 The significance of endocrinological factors

Endocrinological changes have also been considered as a pathophysiological mechanism underlying the disorder (48; 49). Heim et al. examined the hypothalamic-pituitary-adrenal axis for specific changes. The idea was that the chronic pelvic pain could cause similar endocrine alterations as a posttraumatic stress disorder (PTSD). The results showed only a partial match. The authors concluded that the hypothalamic-pituitary-adrenal axis was indeed affected and that the chronic patients possibly lacked the protective effect of cortisol in stress reactions.

5.2.5 The significance of gender-related differences

The question arises whether there could be gender-related differences in pain reception, functionally or structurally different afferences or alterations through hormonal influences in the female organism. This phenomenon has been shown in patients with irritable bowel syndrome using positron emission tomography (PET) (66-68).

6 Causes and findings

6.1 Preliminary remark

Before discussing the possible causes for the symptom of persistent pain in the lower abdomen, we would like to point out again that a critical trade-off should be made between the diagnosis derived from the findings made and the relevance of this diagnosis for the genesis of pain. For the clinical and medical practitioner, the difficulty with this condition is to collate all the

findings and to put them into a diagnostic context while bearing in mind that this context may not necessarily be correct.

6.2 Risk factors

As part of the WHO survey on the prevalence of chronic pelvic pain (17), the authors carried out a meta-analysis of all studies on risk factors for chronic pelvic pain (69). They found 40 studies with a total number of more than 12.000 patients which had evaluated 48 factors which may pose a risk for the occurrence of non-cyclical pain in the lower abdomen over a period of more than six months (studies on patients with dysmenorrhea and dyspareunia were analysed separately).

The meta-analysis showed an increased risk of developing non-cyclical chronic pelvic pain if the following factors were present: prolonged bleeding, confirmed endometriosis, pelvic inflammatory disease, adhesions, history of cesarian section, history of abortion, physical or sexual abuse in childhood, sexual abuse in adulthood, alcohol and drug abuse, anxiety, depression, hysteria and somatisation disorders.

However, there was no association with the following factors: educational level, employment/unemployment, marital status, parity, duration of cycle, history of abortion, sterilisation, infertility, pelvic varicosis and various psychological symptoms and diseases. The order in which these factors are mentioned is incidental.

In the discussion, the authors stressed that the identification of risk factors is fraught with problems similar to the gathering of epidemiological data. Therefore, the varying definition of the disease also limits the validity of the results. It should also be mentioned that with respect to the details, many studies confirm, supplement or contradict the above results of the WHO meta-analysis (17-19; 69-72).

6.3 Overview

Pelvic pain can originate from many structures. In addition to psychosocial factors, visceral, vascular, neuronal, myofascial and musculo-skeletal causes must be considered. Furthermore, it seems useful to distinguish between gynaecological, urological, gastrointestinal and psychogenic diseases as well as diseases of the musculoskeletal system and of connective tissue. Table 2 is an overview of the possible causes of chronic pain (adapted from (2; 6)).

The share of women with a predominantly somatic cause of the pain is currently unclear and varies widely in recent literature. In their

epidemiological studies, Zondervan et al. found a higher share of gastrointestinal (38%) and urological (31%) diagnoses than of gynaecological causes (20%) (25; 73). Many studies showed that, in many cases, more than one possible cause for the pelvic pain is found. Additionally, in most cases, further symptoms apart from pelvic pain are found which can also be helpful in making the diagnosis. This is especially true for gastrointestinal and urological diseases, which according to British studies are accompanied by additional symptoms in about half of the cases (2; 3; 24; 25; 73-76).

Among the most frequent findings made when a patient presents with pelvic pain are diseases such as endometriosis, adhesions, irritable bowel syndrome and interstitial cystitis (2; 6; 18; 19; 74-84). Wesselmann et al. emphasise that doctors frequently concentrate on a pathological finding which could in some way explain the pain (85). This approach often fails to do justice to the complexity of the symptoms.

Table 2: Possible causes and findings in the context of chronic pelvic pain adapted from (2; 6)

Causes and findings		
Gynaecological diseases	Endometriosis/adenomyosis	
	Malignant gynaecological diseases	
	Pelvic inflammatory disease and its consequences (PID)	
	Ovarian retention syndrome/ovarian remnant syndrome (residual ovary syndrome)	
	Adhesions	
	Leiomyomas	
	Cervical stenosis (31) with haematometra	
	Dysmenorrhea	
	Ovulation pain	
	Deformities (e.g. accessory ovaries, uterus duplex (32))	
	Venous congestion in the small pelvis (pelvic varicosis)	
	Urological diseases	Interstitial cystitis
		Urethral syndrome (33)
Malignant urological diseases		
Bladder function disorders		
Chronic inflammatory urinary tract		
Gastrointestinal diseases	Urolithiasis	
	Irritable bowel syndrome	

	Chronic obstipation
	Chronic-inflammatory intestinal diseases
	Malignant intestinal diseases
	Stenosis of the small or large intestine
	Chronic intestinal pseudoobstruction
Diseases of the musculoskeletal system and of connective tissue	Fibromyalgia (34)
	Myofascial pain, trigger points (35)
	Chronic back pain
	Neuralgia/neuropathic pain syndrome (36)
	Dysfunction of the pelvic floor
	Scar pain
	Malignant diseases of the musculoskeletal system and of connective tissue
	Nerve compression syndroms
	Hernia (37)
Psychological disorders	Somatoform disorders
	Adaptation disorders
	Schizophrenic, schizotypal and delusional disorders

6.4 Gynaecological causes and findings

6.4.1 Endometriosis

Endometriosis is a clinically relevant and important cause of chronic pelvic pain. It is defined as the occurrence of endometrioid cell clusters outside the cavum uteri (93). It is regarded as one of the most common gynaecological diseases, but there are no reliable data on its incidence and prevalence. In Germany, the number of new cases per year is estimated at 40.000 (94). In a major review, 33% of the women laparoscoped for chronic pelvic pain were found to have nodules of endometriosis, and some authors suggest that the prevalence is even higher (84; 95-98).

Topographically, endometriosis can present in different forms such as peritoneal, ovarian and deep-infiltrating endometriosis as well as adenomyosis uteri, although these forms often occur in combination (93). Women with endometriosis present with chronic pelvic pain more frequently than women without it. Hurd et al postulated three criteria for assuming that the chronic pelvic pain is caused by endometriosis.

1. The pain occurs cyclically.
2. There is a surgical confirmation.

3. Drug and/or surgical therapy cause a sustained improvement of the symptoms (100).

Nearly every woman with a symptomatic endometriosis also suffers from a more or less severe dysmenorrhoea. In the absence of this cardinal symptom, other differential diagnoses of pelvic pain should be considered (101).

Chronification of the pain is a common clinical characteristic of endometriosis (84).

Some of the women with confirmed endometriosis show no symptoms. The extent of the disease does not correlate with the degree of the symptoms (102), although the case reports on this are contradictory (103-107).

In any individual case, it is difficult to establish a causal link between nodules of endometriosis and specific symptoms. Therefore, a diagnosis of endometriosis is often an inadequate explanation for a patient's pain. In addition, the pathogenesis of pain in endometriosis is still poorly understood. An Australian publication suggests a possible pathogenesis by providing a morphological description of nerve fibres in peritoneal nodules of endometriosis ("neurotrophs of endometriosis")(108). When interpreting older studies on endometriosis, it should be borne in mind that a broad spectrum of mainly peritoneal findings was often termed "endometriosis" and associated with clinical syndromes without a histological confirmation (80). Several authors have pointed out the frequently poor match between the visual finding and the histological result (109). Therefore, a histological work-up should always be performed for differential diagnosis purposes when there is a suspicion of endometriosis (80; 93; 95; 109; 110).

Adenomyosis uteri has a special status. The term denotes the pathological occurrence of endometrioid cell clusters in the myometrium. Its further clinical symptoms are dysmenorrhea, strong and acyclical bleeding and infertility (93).

Statement

Endometriosis has a special role amongst the causes of chronic pelvic pain since it constitutes a disease for which an evidence-based link between the pathological finding and the pain symptoms has been shown.

6.4.2 Adhesions; pelvic inflammatory disease (PID)

Approximately 18-35% of all patients with an acute PID subsequently develop chronic pelvic pain (2; 111-113). A meta-analysis of more than 3.000 chronic pelvic pain patients and more than 2.000 controls by Saravelos et al. showed adhesions in 36% of the former and 15% of the latter (114). However, Rapkin et al. laparoscopically found adhesions in only 26 out of 100 chronic pelvic pain patients (115). The extent and localisation of these adhesions were no different between the pelvic pain group and the asymptomatic control

group. Ehlert et al. also found no correlation between the extent of the adhesions and the intensity of the pain (9). Despite these results, it cannot be ignored that many retrospective and prospective studies showed an improvement or disappearance of symptoms when the adhesions were released completely (81; 116-128). A recent Cochrane review on the therapy of chronic pelvic pain has failed to confirm the benefit of adhesiolysis (129; 130).

Therefore, the role of adhesions in the development of pain is unclear and discussed controversially in literature (80; 131; 132). Again, the current models are inadequate to explain the physiology of the genesis of pain. Nerves have been shown to grow into the adhesion tissue in animal models. These fibres are immunoreactive for synaptophysin, calcitonin, gene-related peptide and Substance P, which makes a sensory afference and therefore pain propagation conceivable (133). In human adhesion tissue, too, nerve fibres have been found (134). Theoretically, it is conceivable that an inflammatory affection of the pelvic nerves causes pain (74). Another theory is that the traction and tension associated with adhesions in the peritoneum cause pain by activating visceral pain receptors. A study by Kresch et al. has shown that adhesions also occurred in control groups without pelvic pain but that these exerted less tension on the surrounding organs (135).

Statement

Although adhesions are rated highly as possible causes of chronic pelvic pain by American and British guidelines, a recent Cochrane analysis showed no evidence-based link between adhesions/PID and the development of chronic pelvic pain.

6.4.3 Pelvic varicosis

Only Anglo-American working groups are currently investigating pelvic varicosis. In Germany, this pathophysiological construct is playing a minor role. It was first described in 1949 by Taylor as a possible cause of pain (34; 35; 136). Patients with pelvic varicosis were found to have a modified vascular reaction, which was suggested as a cause of chronic pelvic pain (137-142). Pathophysiologicaly, no scientifically confirmed explanation has yet been found for the correlation between varicosis and the genesis of pain. Scultetus et al. suggested the varicosis could be caused by the so-called "nutcracker syndrome" (143; 144), a compression of the left renal vein resulting in the triad of pelvic varicosis, microhaematuria and left flank pain.

Statement

In German literature, pelvic varicosis plays a minor role as a cause of chronic pelvic pain. It should be commented critically that chronic pain is not a typical symptom if the patient has varicose veins in other locations.

6.4.4 Ovarian retention syndrome/ovarian remnant syndrome

These syndromes describe the occurrence of chronic pelvic pain after hysterectomy with ovarian conservation (ovarian retention syndrome or residual ovary syndrome) or after bilateral salpingoophorectomy with or without hysterectomy with conservation of ovarian residual tissue (ovarian remnant syndrome) (145). The syndrome was first described in 1970 by Shemwell and Weed (146). The genesis of the pain syndrome is unclear (147). Magtibay et al. reported an incidence of chronic pelvic pain with ovarian residues of 84% (148). Similar figures were found in earlier retrospective studies (149). The complete removal of the ovaries is regarded as a therapeutic option (145).

Statement

The relevance of the ovarian retention syndrome/ovarian remnant syndrome for the genesis of pelvic pain should be viewed critically. Only retrospective studies are available on this subject.

6.5 Other somatic causes

6.5.1 Irritable bowel syndrome

The irritable bowel syndrome (IBS) is characterised by chronic abdominal pain and defecation disorders with no evidence of structural intestinal defects or biochemical deviations which could explain the symptoms. Apart from negative results of a diagnosis by exclusion (blood and faecal examination, ileocoloscopy), an IBS diagnosis is based on symptoms which must be present over a certain period. Currently, IBS is defined by the Rome-III-criteria drafted by 87 experts from 18 countries in 2007 (150):

Recurrent abdominal pain or discomfort on at least three days per month in the last three months accompanied by at least two of the following symptoms:

1. Reduction of the complaints after bowel movement
2. Onset of complaints when frequency of bowel movements changes
3. Onset of complaints when faecal consistency changes.

Depending on the criteria and interview methods used, the prevalence of IBS in the general global population ranges between 7 and 25%. 10-50% of those affected consult a doctor. IBS patients cause high direct and indirect health care costs. In 10-50% of IBS patients, further functional disorders such as female chronic pelvic pain, tension-type headache or fibromyalgia syndrome

are found. The prevalence of psychological disorders in IBS patients ranges between 40-80% depending on the diagnostic criteria and care level (151). The confirmed pathophysiological mechanisms for IBS (evidence level Ia) are genetic factors, familial learning, visceral motor disorders, visceral hypersensitivity, peripheral and central sensitisation, disorders of the hypothalamic-pituitary-adrenal axis as well as anomalies of the neuroimmunological and emotional-motor system (152; 153). Using postinfectious IBS as a typical example, it has been possible to show the interaction between biological (bacterial intestinal infection) and psychosocial factors (psychosocial stress, somatisation disorder) in the development of IBS (for IBS therapy, see Chapter 8.7).

Statement

The irritable bowel syndrome plays a key role in chronic pelvic pain. It should be considered as a possible cause/contributing factor in chronic pelvic pain.

6.5.2 Bladder pain syndrome/interstitial cystitis

Patients with chronic pelvic pain often complain about painful micturition. This is often misinterpreted as a urinary tract infection. Apart from urological diseases (stones, anatomical changes), the bladder pain syndrome (BPS) and one of its subforms, interstitial cystitis (IC) should be considered as possible causes. Some studies have shown that this complex syndrome could be much more relevant than has been thought so far (78; 154).

The European Society for the Study of IC/BPS (ESSIC) defines the bladder pain syndrome as chronic pelvic pain or a feeling of pressure or discomfort which is perceived as relating to the bladder. The bladder pain syndrome is accompanied by at least one further urinary tract symptom such as persistent urgency or increased frequency of micturition. Other possible diseases causing similar symptoms must be excluded. The bladder pain syndrome can be classified using hydrodistension tests and morphological changes found in bladder biopsies (155). These are the diagnostic methods necessary for chronic pelvic patients suffering from micturition disorders after excluding an acute urinary tract infection.

A urination log is absolutely indispensable to record and assess the extent of the pollakiuria. Further examinations (cystoscopy, hydrodistension under anaesthesia, histomorphological examination of the mucosa of the bladder) are useful for differential diagnosis, but not absolutely indispensable. The same is true for the potassium instillation test. The prevalence of the bladder pain syndrome in the general population is estimated at 10-25% (78; 156-158).

Statement

The bladder pain syndrome plays a key role in chronic pelvic pain. It should be considered as a cause/contributing factor to chronic pelvic pain.

6.5.3 Myofascial pain syndromes

Fibromyalgia, myofascial and neuropathic pain

Chronic pelvic pain is often multifactorial. Muscular, neuronal and skeletal factors should also be regarded as potential causes (159-161). Reiter et al. examined 183 women for further somatic disorders and found that these were present in 47% of the cases (162). The most frequent further diagnosis was myofascial pain. If these patients were also suffering from a psychopathology, their long-term prognosis was worse. A Norwegian study found a high co-morbidity of musculoskeletal diseases with gynaecological conditions, among others with chronic pelvic pain (163). For soft tissue diseases such as fibromyalgia, a co-morbidity with irritable bowel syndrome, primary dysmenorrhea and chronic functional headache was also found. Compared with the control groups, there was a markedly increased likelihood of also suffering from one of these three functional diseases (89). For the differential diagnosis of fibromyalgia, we would like to refer to the current S3 guideline "Definition, Pathophysiology, Diagnosis and Therapy of Fibromyalgia Syndrome" (164).

Trigger points

Trigger points are hyperirritable sites in the muscles or muscular fascia (165). Their pathophysiology is unclear. In patients with chronic pelvic pain, they are mostly found in the muscles of the anterior abdominal wall or of the pelvic floor. A trigger point frequently develops after the tissue has been injured, e.g. after a Pfannenstiel incision or an episiotomy (80). The resulting pain on pressure can be eliminated by applying local anaesthetics (166; 167).

Hernia

Another potential cause of chronic pelvic pain is hernia. The most common hernia is of the inguinal or femoral type. Sciatic hernia subsequent to an atrophy of the piriformis muscle has also been described as a possible cause of chronic pelvic pain (92). The authors describe the laparoscopic management of 20 patients. Sciatic hernia was found in 2% of the cases. In a case report, Hohl outlined the laparoscopic approach in three patients where a prolapse of the tube and/or ovary into the hernia appeared to be causing the pain (168).

Statement

Diseases of the musculoskeletal system and of connective tissue play a key role in chronic pelvic pain. They should be regarded as a potential cause/contributing factor in chronic pelvic pain.

6.5.4 Rare somatic causes

Rare somatic causes whose association with chronic pelvic pain has so far only been dealt with in small studies or case reports without a high scientific level of evidence are not discussed in this guideline.

6.6 Psychosocial causes

The fact that, alongside organic causes, psychosomatic factors may also be responsible for the symptoms of chronic pelvic pain was described early on by many scientists (see Chapter 5.1). Particularly in the second half of the last century, a dichotomy developed in the way the disease was looked at (30). On the one hand, scientists looked for organic causes in the belief that the chronic pain can only be caused by a tissue defect while ignoring the patient's individual psychosocial background. On the other, studies on psychological/psychiatric causes were carried out without including patients with evidence of an organic disease.

There are many examples in literature of the common early concept that chronic pelvic patients with and without an organic pathology are suffering from two distinct diseases, and it was frequently assumed that patients without an organic pathology tend to suffer more from a psychopathology than patients with a known organic pathology (169). Especially in gynaecology, however, there are many diseases where it is impossible to distinguish body and mind. Severe forms of organic diseases such as endometriosis are often associated only with mild pain, whereas patients with a mild endometriosis may complain about debilitating pain lasting for many months and years.

It was only towards the end of the last century that a change in thinking occurred. Meanwhile, it has been shown convincingly that there need not necessarily be any equivalence between the degree of the organic pathology and the psychological personality profile or the perceived pain of the patient (44; 170; 171). In order to understand the pain perception and the associated limitations of the quality of life, individual psychological and social factors and life experiences must become part of a multicausal approach (41; 172).

6.6.1 Psychological factors

The difficulty in conducting and evaluating studies into the link between psychological/psychiatric diseases and chronic pelvic pain is the fact that it is often impossible to determine which of the symptoms appeared first.

Therefore, it is conceivable that chronic pain can produce a psychopathology, but an existing psychopathology may also influence the pain perception and favour the development of chronic pain (173). Moreover, overlapping symptoms and the interdependency of the diseases often make it difficult to arrive at a clear diagnosis. There are only a small number of prospective studies on the development of chronic pelvic pain subsequent to the diagnosis of a psychological illness or on the development of psychological diseases after chronic pain experiences. One example is the development of pain symptoms after physical and sexual abuse in childhood (see below). However, in general, the belief that in this context, a psychopathology should be seen as a response to rather than a reason for the genesis of chronic pelvic pain seems to be gaining ground (174; 175). As described above in the chapter on risk factors, Latthe et al. performed a WHO meta-analysis and found an increased risk of the occurrence of chronic pelvic pain if the patient had a history of anxiety, depression, hysteria and somatisation disorders as well as alcohol and drug abuse (69). By contrast, McGowan had previously concluded from a meta-analysis of the published literature on the identification of psychological characteristics which only occurred in association with chronic pelvic pain that there are no psychopathological differences between patients with evidence of an organic pathology and those without it (176). However, articles are published on a regular basis indicating that patients with chronic pelvic pain are suffering from a psychological condition (177).

With respect to depression, eight articles covering a total of 410 patients with non-cyclical chronic pelvic pain and 376 controls have been evaluated in the WHO meta-analysis. It showed a statistically significant link between depression and chronic pelvic pain (69). For example, Walker et al. observed an increased prevalence of depression in several studies (178; 179). On the other hand, there are studies failing to identify depression as a risk factor for the development of chronic pelvic pain (48). In 62 gynaecological in-patients awaiting laparoscopy, 29 of whom were suffering from chronic pelvic pain, screening for psychiatric morbidity and disease behaviour showed more cases of depression among patients with pain than in the control group (171). Of the 29 women with chronic pelvic pain, 11 had evidence of an organic pathology while 18 had not. In either group, no difference in psychiatric morbidity and disease behaviour was found, but there was a difference with regard to pain perception as measured by Mc Gill's pain questionnaire. Patients with chronic pelvic pain also had a higher incidence of somatisation disorders (8; 9; 69; 178-183). For this reason, Greimel et al. called for an early psychodiagnostic work-up (8; 181). In their group of 103 chronic pelvic pain patients, 84 women were affected by a somatoform pain disorder within the meaning of ICD 10 (F 45.4). 5 women were diagnosed with an

undifferentiated somatoform disorder (F 45.4). Organic causes of the chronic pelvic pain had previously been excluded. Ehler et al. (1999) compared women with adhesions (n=10), patients without a defined organic cause (n=16) and pain-free infertility patients (n=14). They found a somatoform pain disorder (using the DSM III-R criteria) in 60, 73 and 0% of the respective patients (9). In a review, Nijenhuis reported his experience with the somatoform dissociation questionnaire (SDQ-20) (184). He found a link between somatoform dissociation and traumatic events in pelvic pain patients. On the subject of somatisation disorders, the WHO meta-analysis looked at eight studies covering 303 patients with chronic pelvic pain and 250 controls and found a statistically significantly increased occurrence of somatisation among patients with chronic pelvic pain (69).

Last but not least, a history of alcohol or drug abuse also appears to be a possible cause of chronic pelvic pain (69; 178; 180).

Many studies have explored the coping strategy of patients with chronic pelvic pain (185-187). Edwards et al. investigated cognitive coping processes in chronic pelvic pain patients under the assumption that they could be relevant for the genesis and continued perception of pain. They concluded that in pain patients, a coping bias is a reaction to pain rather than constituting a distinct causative factor (185). In another study, Walker et al. analysed coping mechanisms in the context of chronic pelvic pain (187). They suspected a stronger tendency for dissociation among chronic pelvic pain patients compared with the pain-free control group. This suspicion was confirmed. Other authors arrived at the same result (180). McDonnell also investigated psychosocial coping and adaptation among chronic pelvic pain patients (188). In addition to eight patients interviewed personally, they asked 120 women to complete questionnaires sent to them by post. The stressors found were emotional factors, pain interferences and the disbelief of loved ones regarding the disease of the women concerned. The worse the women coped, the sharper the pain they felt. This was accompanied by more subjective impairment, more depression, less social functioning and less satisfaction with life. They also changed doctors more often. The psychosocial situation also had an impact on the coping strategies the women used. On the whole, we can say that the research into psychological morbidity is problematic. Many studies are flawed for example by too small group sizes, unmatched control groups and the use of non-standardised psychiatric instruments, which detracts from the validity of the results.

Statement

There is often a comorbidity with psychological factors such as anxiety, substance abuse or depressive disorders.

6.6.2 Social factors

The relevance of social and particularly socio-economic factors in the development of chronic pelvic pain has been investigated in some epidemiological studies (2; 41). According to demographic studies, there seems to be no correlation between age, race or ethnic background, marital status and employment (18; 24; 69; 190). In a cross-sectional study, Roth et al. investigated the association between educational level and pain, affective disorder and a subjectively experienced impairment among 187 chronic pelvic pain patients (190). They found a correlation between a lower educational level and stronger pain, "worrying", emotional suffering and functional impairments. No difference was seen regarding duration of pain and depressive symptoms. Beard et al. observed a higher number of diseases and deaths in the families of patients with chronic pelvic pain (140). They formed the hypothesis that the somatic changes may have originated in stress reactions in the patients' everyday lives. The WHO meta-analysis showed no association with social factors (17).

Statement

No unambiguous correlation between social factors and chronic pelvic pain has been proven.

6.6.3 Physical and sexual abuse

The link between chronic pain and physical or sexual abuse especially in childhood but also in adult age has been described in detail in many studies (9; 72; 191-202) although the mechanism leading to chronic pelvic pain after an experience of abuse has not been adequately explained (48; 203). It was found that 40-60% of women with chronic pelvic pain without an organic pathology in their patient history had been abused sexually or physically (2; 178-180; 197; 198; 200; 202; 204; 205). Many of these studies found an increased incidence of a depressive mood. In addition, there were more cases of somatisation disorders, anxiety and posttraumatic stress disorders (48).

A recent major study covering 713 patients looked into the impact of sexual or physical abuse on the development of a posttraumatic stress disorder (PTSD) among patients with chronic pelvic pain (202). A history of sexual or physical abuse was found in 47% of the patients interviewed. In 31% of these cases, a posttraumatic stress disorder was diagnosed. A history of violence was associated with poorer general health, increased medical symptoms, a larger number of previous operations, an increased number of days spent in bed and more frequent functional disorders due to pain. Another recent study on the coping strategies of 98 patients also concluded that patients

with chronic pelvic pain and traumatic experiences have a higher tendency to suppress their emotions and ideas about their past abuse (186). There are studies analysing different specific syndromes of chronic pelvic pain with regard to a possible link with a history of abuse. For example, Fry et al. compared patients with chronic pelvic pain with or without pelvic varicosis with respect to psychosocial factors in the genesis of pain (206). In this study, group size differed greatly (130 vs. 24 patients). Among patients with pelvic varicosis, they found more women with a history of sexual abuse in childhood. In an older study, Rapkin et al. found no specifically increased rate of sexual abuse. Instead, a much larger share of symptomatic women had an experience of violence in childhood than an asymptomatic control group and a group of patients with chronic pain in other locations (39% vs. 9% vs. 18%) (200). Coker et al. also conducted an epidemiological study on the morbidity of women suffering from home violence (207). 1152 women consulting their GP were interviewed about physical and psychological violence in this cross-sectional study. If the woman had a violent relationship with her partner, the relative risk of developing chronic pelvic pain increased by a factor of 1.62.

Interestingly, a prospective study on the development of chronic pelvic pain showed no increased incidence of unexplained pain syndromes after violent childhood experiences (208). In this study, the authors had tracked patients who had fallen victim to violence in childhood until adult age and then interviewed them about medical diseases and symptoms. However, women with pain syndromes without an organic diagnosis had a more acute memory of their violent experiences, which was interpreted by the authors to mean that there is a link between the acuteness of the memory of violence and the perception of pain. A further study investigated whether different forms of childhood trauma led to pain in different locations. 30 patients with chronic pelvic pain were compared with 34 patients suffering from chronic back pain. The prevalence of childhood trauma was the same in both groups. No specific association between the trauma and the pain location was found (209). When interpreting the results of prospective studies, it must be borne in mind that the interruption of abuse and the therapeutic intervention represent a bias.

The above-mentioned WHO meta-analysis on the influence of risk factors on the development of chronic pelvic pain also showed a statistically significant association both with sexual and physical abuse in childhood (69). With respect to childhood sexual abuse, the authors analysed ten publications covering 592 patients with chronic pelvic pain and 1472 controls. Regarding physical abuse, the authors examined five studies with 309 patients and 960 controls. However, a statistically significant association between an experience of abuse in adulthood and the development of chronic pelvic

pain could only be confirmed for sexual abuse (eleven studies with 664 CPP patients and 966 women without symptoms) but not for physical violence. Generally, it must be added that a multivariate analysis showed no statistically significant correlation. Therefore, the influence of physical and sexual abuse on the genesis of chronic pelvic pain cannot be evaluated conclusively based on the literature.

Statement

Based on the literature available, the association between physical and sexual abuse and chronic pelvic pain cannot be evaluated conclusively.

7 Diagnosis

7.1 Preface

In female chronic pelvic pain, it can be beneficial to start the therapy as early as at the diagnostic stage. Taking the patient's history provides the key link between diagnosis and therapy. This conversation about the patient's history should be conducted carefully so as to explain some key psychosomatic factors to the patient as part of primary psychosomatic care.

7.1.1 Doctor-patient relationship

In the treatment of chronic pelvic pain patients, the doctor-patient relationship is of fundamental importance. In many publications, the dilemma of treating patients with chronic pelvic pain has been addressed. The difficulties result mainly from the fact that in many patients, it is impossible to arrive at a clear diagnosis.

In one of her publications, Slade outlines the classic experience of patients with chronic pelvic pain (210): When the chronic pelvic pain occurs for the first time, the patient consults her GP. The standard diagnostic work-up (patient history, physical examination, laboratory diagnostics) fails to identify a cause of the pain. As the pain persists, the patient repeatedly consults her GP. She is then referred to internal, surgical or gynaecological or other specialists who take further diagnostic steps (sonography, MRI, CT, laparoscopy) but fail to find a cause of the pain. The patient becomes distressed. She knows she is not imagining the pain. The pain starts to become chronic. As a result of her pain and distress, patient often experiences depressive symptoms, a worsening of her quality of life through reduced social and leisure activities as well as difficulties in partnership and working life. The result is frustration, helplessness and isolation. The patient is convinced of the severity of her disease and consults further doctors hoping for a different opinion. Many patients deny any possibility of a psychological factor, and

many doctors take only inadequate account of such a factor or fail to suggest this possibility to the patients because of their own inexperience. In theme-centred groups of chronic pelvic pain patients, Grace analysed the experience these women go through in the health system (211; 212). (I) Doctors negate the women's subjective experience of pain, which makes it difficult for them to take charge of the situation, (II) a technology-centered approach limits the patients' scope of interpretation and (III) the concept of chronic pelvic pain without an organic diagnosis allows a vacuum to arise which is filled with neuroses and psychological problems. An older publication indicates that patients with chronic pelvic pain are often convinced they have not been properly diagnosed and are suffering from an undiagnosed serious illness (213).

A recent study by Price examined what patients with chronic pelvic pain expect their doctor to do (214). Price focussed on four themes: (I) personal attention, which the patients often did not experience, (II) understanding and the feeling of being taken seriously, which the patients were often missing, (III) explanations, which most patients failed to receive and (IV) reassurance regarding their complaints, which was also mostly lacking. The authors concluded that the outpatient treatment of chronic pelvic pain patients must improve. However, chronic pelvic pain also raises specific associations on the part of the carers. These were studied by Selfe et al. (215). They sent questionnaires to 300 British gynaecologists (response rate: 48%) as well as interviewing gynaecologists, general practitioners and patients personally. The goal of the study was to find out what the respondents were thinking about chronic pelvic pain and why. The questionnaire was designed to reveal the attitudes of the doctors interviewed towards the chronic pelvic pain syndrome. The assumption was that their attitudes influence the progress and success of the therapy. The questionnaire focussed on five major topics: (I) the efficiency of treatment, (II) the complexity of the disease, (III) sociocultural liberalism, especially openness towards alternative models, (IV) the identification of pathological findings and (V) doctor-patient communication. However, the study did not answer the question whether the doctor's attitude influences the outcome of the disease. In this respect, the authors called for further research into how attitudes develop in medicine and what their effects are on patient care.

Statement

A robust doctor-patient relationship is the prerequisite for the early detection of a psychosomatic component. The doctor should understand the full complexity of the disease.

7.2 Basic gynaecological diagnosis

7.2.1 Patient history

Taking the patient's history should be a continuous, detailed and precise process. The following aspects of pain perception should be addressed (2; 84):

- Pain location using the pain sketch by the DGSS (German society for research into pain)
- Pain intensity (visual analog scale (VAS))
- Pain duration
- Pain quality
- When do the symptoms occur?
- Are they linked to the menstrual cycle?
- When did the symptoms start?
- Was there a trigger situation?
- Which activities influence (improve, worsen) the symptoms?
- How do they affect the quality of life (partnership, sexuality, work, leisure)
- Subjective disease theory

It is helpful to draw a pain sketch and to ask specific questions about further pain syndromes (e.g. head and back pain) in order to keep an open mind about the possibility of a multisymptomatic disorder (somatisation disorder). Keeping a pain calendar for a limited period can help making the diagnosis (216).

Apart from asking about the pain, the other usual questions about previous diseases and operations, systemic diseases, diseases in the family and about the social environment of the patient should also be asked. In addition, special risk factors for the development of chronic pelvic pain should be explored (see Chapter 4.1).

Special emphasis should be placed on the experience of violence, substance abuse and signs of a depressive disease (22). If the patient complains about further chronic disorders such as headaches, sleeping disorders, vertigo or back pain, this may indicate a somatisation disorder (217). Special questionnaires can be helpful as a psychodiagnostic tool (218; 219). However, we cannot currently recommend the use of special personality tests and psychiatric questionnaires. There is no validated screening tool available for the diagnosis of chronic pelvic pain. If a somatisation disorder is suspected, a psychological or psychiatric intervention should be considered at an early stage (8; 181).

Statement

A comprehensive patient history is indispensable. The patient should be asked actively about further concomitant symptoms and impairments.

Psychological diagnosis should be based on the interview principles of basic psychosomatic care.

7.2.2 Pelvic examination

Despite numerous diagnostic technologies, pelvic examination still has a key role alongside patient history. It is fundamental in order to identify the possible differential diagnoses (2; 84; 220). A comprehensive abdominal and pelvic examination must be carried out. The synopsis of all the information from patient history, inspection and clinical examination makes it possible to formulate a first tentative diagnosis, to reliably exclude various differential diagnoses and to initiate further targeted diagnostic steps.

Statement

A pelvic examination should always be part of the diagnostic work-up.

7.2.3 Chemical laboratory examination

Chemical laboratory examinations mainly serve to exclude inflammatory processes. In addition, a urine test should be performed on women with such a suspicion. More specific laboratory examinations should be reserved for special investigations and suspicions.

Statement

Chemical laboratory examinations should be carried out to exclude inflammatory processes. They should include leukocytes, CRP and a urinary status.

7.3 Diagnostic imaging

7.3.1 Sonography

Vaginal sonography is the most common diagnostic imaging technique for chronic pelvic pain. In view of the more and more frequent laparoscopies, Okaro et al. studied 120 patients with chronic pelvic pain in order to test the validity of the sonographic examination (221). They broke the sonographic findings down into "hard markers" (structural changes such as endometrioma, hydrosalpinx) and "soft markers" (pain with a specific location, reduced ovarian mobility or free liquid) as well as a normal sonographic finding. Afterwards, a laparoscopy was performed on all 120 patients. If sonographic "hard markers" were present, organic changes were also found in 100% of the cases. In the case of soft markers, the likelihood of a pathology was 73%. A normal sonographic finding was accompanied by a somatic laparoscopic finding in only 20% of cases. The total share of laparoscopically detected organic pathologies in all patients was 58%. We would like to remark critically

that the group of hard markers included diagnoses such as hydrosalpinx, but there is no proper evidence so far that these can be a potential cause of chronic pelvic pain.

In an earlier study by Harris et al., 86 chronic pelvic pain patients with normal sonographic findings had been monitored for 6-21 months (222). Further diagnostic measures found a cause of their symptoms in only a few of these cases. Only one out of 13 radiological examinations and four out of 19 surgical interventions led to an organic diagnosis. Over the course of the study, 77% of the cases improved their symptoms; however, amongst the patients with chronic pelvic pain, the proportion was only 50%. This study confirmed that when there is a normal sonographic finding, there is rarely an organic diagnosis. A small study with 50 women revealed that a normal finding in the physical examination is also mostly associated with a normal sonographic finding. In this study, only 8% of the chronic pelvic pain patients examined had an abnormal sonographic finding if no pathology had previously been found in the physical examination (223).

Statement

A vaginal sonography should be part of the gynaecological examination. Any findings made should be challenged critically with respect to their relevance for the genesis of pain.

7.3.2 Computed tomography, magnetic resonance imaging, positron emission tomography

If the sonography is normal, other imaging techniques tend to be superfluous. They rarely make a positive contribution to the diagnosis (222). The S1-guideline of the German Society for psychosomatic gynaecology and obstetrics on chronic pelvic pain explicitly says that computed tomography, MRI and positron emission tomography are normally unnecessary (7). However, some authors have discussed the use of MRI, hysterocontrastsonography and CT as useful measures in addition to sonography (84; 224). In its recommendations, the American College of Obstetricians and Gynaecologists also believes that MRI or CT is rarely of benefit (2). One such rare case is using MRI in the diagnosis of adenomyosis uteri. In suspicious cases, combining vaginal sonography with MRI can result in a relatively reliable diagnosis (144).

Statement

CT, MRI and PET are reserved for special investigations and play no role in routine diagnosis.

7.3.3 Imaging for pelvic varicosis

Pelvic varicosis cannot be diagnosed. Phlebography, which was used in the past, has now become obsolete.

7.4 Interdisciplinary diagnosis

If there is a corresponding indication, interdisciplinary collaboration should start even at the diagnostic stage. The patient should present to abdominal surgeons, gastroenterologists, neurologists, orthopaedists, psychiatrists, psychosomaticists, pain therapists and urologists. The above order of disciplines does not reflect their relative value. Standardised questionnaires such as the German pain questionnaire (DSF) may be used in the diagnostic work-up for pain therapy purposes (225). Meanwhile, special chronic pelvic pain centres have been established in some countries in order to provide optimum diagnosis and therapy. In Germany, however, no "Chronic Pelvic Pain Clinic" has yet been established as an interdisciplinary platform for cooperation as it has in Anglo-American countries.

Statement

Even at the diagnostic stage, there should be interdisciplinary collaboration. The patient should present to abdominal surgeons, gastroenterologists, neurologists, orthopaedic surgeons, psychiatrists, psychosomaticists, pain therapists and urologists.

7.5 Invasive diagnosis

7.5.1 Diagnostic laparoscopy

Up to 40% of the diagnostic laparoscopies are based on the indication "chronic pelvic pain" (95; 226). Whether laparoscopy leads to a meaningful diagnosis adequately explaining the symptoms described by the patients is controversial. According to literature, a pathological finding is made in 8 to 90% of the laparoscopies (2; 82; 135; 227-234). Adhesions and endometriosis are mentioned most commonly (82; 95; 135; 229; 231; 233) and have been diagnosed in up to 90% of the laparoscopies (2). In many studies, the laparoscopic diagnosis correlated with a previous abnormal clinical finding (230; 235).

Naturally, it is difficult to define the right time for laparoscopy in the sequence of diagnostic measures in chronic pelvic pain patients.

In a retrospective study, the influence of diagnostic laparoscopy on the diagnosis was examined in more than 3.000 patients aged between 15 and 66 years. 21% of the patients had a normal pelvic finding. The most frequent pathology was endometriosis at 60%, followed by pelvic varicosis (13%), hydrosalpinx (6%) and adhesions (2%). In this study, 96% of the patients had not undergone previous surgery. This probably explains the low proportion of

adhesions in the group. In total, complications occurred in 3% of the laparoscopies while 3 patients had severe complications. In 42% of the patients, the result of the laparoscopy led to a change in the therapy which had been based on the initial tentative diagnosis (236).

It can be very difficult to decide whether a pathological intraoperative finding is in fact the cause of a corresponding symptom since there is no evidence of a direct correlation between the intraoperative finding and the intensity of the pain in some diseases (e.g. endometriosis; see Chapter 6). Howard points out that the main purpose of laparoscopy is to diagnose or exclude adhesions or endometriosis since these are the most common laparoscopically detectable changes in chronic pelvic pain (95).

In an older article, the same author reviews what some doctors said when no pathological finding was made in diagnostic laparoscopy (237): (I) "Everything is o.k.", (II) the pain arises "in the (patient's) mind" and she should "consult a psychiatrist", (III) a neurolysis should be done, (IV) the only thing which can be done is to carry out a hysterectomy or (V) nothing can be done and she should learn to live with the pain. In Howard's view, most of these statements are inadequate since diagnostic laparoscopy is only one possible method of evaluation.

About 10 years ago, it was examined whether it is beneficial to carry out the diagnostic laparoscopy under local anaesthesia, allowing the (conscious) patient to say during the operation whether instrumental laparoscopic manipulation at a defined intraabdominal site can cause pain in varying intensities. This was supposed to allow for a precise localisation of the pain ("pain mapping") (238-246). This pain mapping has not been proven to be effective and reproducible so far. It must be regarded as experimental medicine and cannot therefore be recommended in non-study settings (242; 246; 247). There are no studies from German-speaking countries on this subject. On the whole, diagnostic laparoscopy constitutes an important step in the work-up of chronic pelvic pain (248). It is indicated all the more the clearer it is on the basis of the clinical examination that there must be a relevant intraabdominal pathology, e.g. endometriosis or a tumour. One crucial advantage of laparoscopy is the possibility to immediately proceed with surgical therapy in the same session in the case of a morphological disorder if this is of benefit and the patient is appropriately prepared.

When there is a suspicion of a retroperitoneal pathology (see below) or in the case of a deeply infiltrating endometriosis (e.g. in the rectovaginal septum or deep infiltration of the anterior wall of the rectum), laparoscopy with its purely diagnostic purpose has its limitations. Only a proper dissection would lead to an exact diagnosis, but this would mean going beyond the idea of a purely diagnostic intervention. Therefore, retroperitoneal dissection (e.g. neurolysis in

the area of the sacral plexus, dissection of the paraproctium etc.) cannot normally be part of a diagnostic laparoscopy. If there is a clinical suspicion of such a pathology, the patient must be thoroughly prepared for such an intervention or – if it is not desired – the intervention must be limited, so that the possibility of performing a second intervention must be discussed with the patient postoperatively, weighing up the pros and cons (see Chapter 8).

Generally speaking, laparoscopy is a useful diagnostic method. However, it only allows for an intraperitoneal diagnosis. Retroperitoneal diseases cannot be detected with the same level of certainty.

7.5.2 Additional surgical diagnosis

Special surgical diagnostic measures should be reserved for more specific questions. In the context of chronic interstitial cystitis, some authors recommend to combine every laparoscopy with a cystoscopy. This view is controversial since in the absence of any symptoms, the conditions found on cystoscopy tend to be normal (249).

Opinions regarding an additional hysteroscopy also differ. Some authors believe that this would result in important additional insights into the possible cause of the pain. In her patient group, Nezhad et al. found between 27 and 40% additional intrauterine abnormalities depending on the laparoscopic diagnosis (250). However, these findings cannot simply be classified as chronic pelvic pain. Occasionally, a case of uterine adenomyosis can be diagnosed hysteroscopically and even resected transcervically in infertility patients if the presentation is focal (251).

Statement

Special surgical/diagnostic measures are reserved for specific questions but should not be part of the routine diagnostic work-up.

7.6 Special diagnostic tools

A specific suspicion about the cause of chronic pelvic pain may make it necessary to employ specific diagnostic tools. These may include urodynamic tests for a urethral syndrome, stool analysis for diarrhea-related anomalies or hormone analysis for an ovarian remnant syndrome (84). However, these diagnostic tools tend to be useless in general routine diagnostics. Using special symptom-related questionnaires can be much more helpful (252). One example are the Rome criteria for the diagnosis of the chronic irritable bowel syndrome (253).

Statement

Special diagnostic tools are reserved for specific questions but should not play a role in routine diagnostic work-up.

7.7 Diagnostic work-up in adolescents

It is assumed that around 3-5% of all outpatient medical consultations by adolescent women (11 to 21 years) are due to chronic pelvic pain (254; 255). Adolescence is characterised by the changes of puberty and by breaking away from the parents. If there is a somatic diagnosis, the chronic pelvic pain at this age is mostly due to gynaecological findings. As very young patients are often accompanied by their parents when they visit their doctor, the doctor is frequently faced with severe problems when taking the patient's history. Therefore, we recommend to talk to the patient alone about certain questions such as sexual activity, substance abuse or physical and sexual abuse. As a person of trust, the doctor has a special status in this regard.

According to Stones et al., the laparoscopic findings in adolescent patients with chronic pelvic pain break down as follows (254; 256; 257): 25-40% normal anatomy, 38-45% endometriosis, 5-15% pelvic inflammatory disease, 4-13% postoperative adhesions, 5-8% uterine malformations, 2-5% ovarian cysts, 2% other causes. It is controversial whether a diagnostic laparoscopy should be performed in adolescent patients with chronic pelvic pain (258-260). Especially in the case of endometriosis, laparoscopy offers the chance of therapeutic intervention immediately after making the diagnosis. However, such interventions always bear the risk of causing adhesions requiring secondary intervention.

Early targeted diagnostic work-up and therapeutic intervention are particularly important in adolescence as this can reduce the patients' morbidity in later life. It also has an important health policy aspect since it has repercussions on the patients' subsequent fertility.

Statement

In adolescent cases of chronic pelvic pain, the diagnostic method should not be invasive initially in order to avoid further chronification and the patient's fixation on the pain. Exception: clinical suspicion of endometriosis and other gynaecological organic pathologies.

8 Therapy

The many diagnoses in the area of chronic pelvic pain account for the variety of therapeutic interventions, but also the inhomogeneous therapeutic management of these patients (261). Especially in the long run, many therapies produce rather dissatisfactory results. The search for new therapeutic approaches is often difficult; one reason is that the pathogenesis of chronic pelvic pain is still poorly understood (262). In many cases, there are multiple factors influencing the disease, which makes therapy all the more difficult (262). In an editorial, Price and Blake underline the importance of overcoming the traditional separation of patient history, examination and subsequent therapy (264). They postulate that the mere assessment already has a therapeutic effect. They maintain that the patients' subjective disease theory plays a central role. Among other things, they advocate promoting the communication skills of the carers through more training. Based on current data, none of the therapies analysed can be said to be the gold standard.

Despite the enormous cost incurred in the diagnosis and therapy of chronic pelvic pain due to the relatively high prevalence, no results of effective randomised controlled studies are available which could help provide patients with the optimal therapy. The 2007 review by the Cochrane Collaboration (including literature up to January 2005) on the therapy of chronic pelvic pain in randomised controlled studies analysed 19 publications, 14 of which were of sufficient methodological quality (129). An analysis of the therapy studies showed that most of the concepts include psychotherapy, laparoscopy to exclude other diseases, hormonal medication and surgical intervention to achieve a nervous blockade. However, the review only considered studies on patients with pelvic varicosis, adhesions or no evidence of an organic pathology. It excluded studies examining patients with evidence of endometriosis, primary dysmenorrhea, pelvic inflammatory diseases or irritable bowel syndrome. Table 3 illustrates the study designs and results. Studies on pelvic varicosis are mentioned in this table. A number of recent studies have been added.

In general terms, the Cochrane Collaboration review must be seen critically with regard to the quality of the therapy studies. Some of the studies with a high level of evidence only include small case numbers or a too short follow-up, making it impossible to draw meaningful conclusions.

In a recent prospective study on the effectiveness of different therapies, 370 patients undergoing various therapies were monitored for one year (265). 181 patients received a non-surgical therapy (drug therapy, physical therapy, psychotherapy), while 189 patients were treated surgically (laparoscopy, oophorectomy, hysterectomy etc.). 46% of the patients reported an

improvement of their pain while 32% achieved an improvement of their depressive symptoms. No difference in terms of therapy response was seen between patients with a drug-based or a surgical intervention.

Statement

Only a small number of randomised controlled studies on drug-based, surgical and psychotherapeutic-psychosomatic therapies are available. In view of these limited data, no strong recommendations can be given for the therapy of chronic pelvic pain. Nevertheless, some therapeutic interventions have proven useful and effective.

Tables 3a to d: Controlled randomised studies on the therapy of chronic pelvic pain (studies on endometriosis, primary dysmenorrhea, PID, pelvic varicosis and irritable bowel syndrome are excluded)

3a: Drug-based therapies

Study	n =	Therapy	Result
Engel 1998 (266)	25	<ul style="list-style-type: none"> sertraline 2 x 50 mg daily orally for 6 weeks control group with placebo 	<ul style="list-style-type: none"> no statistically significant pain reduction using antidepressives
Sator-Katzen-schlager 2005 (267)	56	<ul style="list-style-type: none"> three study arms: gabapentin in increasing doses to 3600 mg daily orally amitriptylin in increasing doses up to 150 mg daily orally combination of gabapentin and amitriptylin 	<ul style="list-style-type: none"> pain reduction in all three therapy arms with statistically significantly improved pain reduction and fewer side effects when administering gabapentin good long-term effect
Farquhar 1989 (268)	84	<ul style="list-style-type: none"> medroxyprogesterone acetate 50 mg daily orally for 4 months with/without psychotherapy control group with placebo with/without psychotherapy 	<ul style="list-style-type: none"> statistically significantly reduced pain reduction by medroxyprogesterone acetate no long-term effect
Walton 1992 (269)	165	<ul style="list-style-type: none"> medroxyprogesterone acetate 50 mg daily orally for 4 months control group with placebo 	<ul style="list-style-type: none"> no statistically significantly reduced pain reduction by medroxyprogesterone acetate
Soysal 2001	47	<ul style="list-style-type: none"> two study arms: goserelin 3.6 mg 	<ul style="list-style-type: none"> statistically significantly reduced pain reduction by

(139)		monthly subcutaneously for 6 months <ul style="list-style-type: none"> • medroxyprogesterone acetate 30 mg daily orally for 6 months 	goserelin <ul style="list-style-type: none"> • statistically significantly improved long-term effect by goserelin
Stones 2001 (270)	39	<ul style="list-style-type: none"> • lofexidin hydrochloride 2 x 200 mg daily orally increasing dosage up to 2 x 600 mg daily orally for 8 weeks • control group with placebo 	<ul style="list-style-type: none"> • no statistically significantly reduced pain reduction by lofexidin hydrochloride

3b: Surgical therapies

Study	n =	Therapy	Result
Johnson 2004 (140)	56	<ul style="list-style-type: none"> • laparoscopic uterine nerve ablation • control group with purely diagnostic laparoscopy 	<ul style="list-style-type: none"> • no statistically significant pain reduction by uterine nerve ablation
Peters 1992 (219)	48	<ul style="list-style-type: none"> • adhesiolysis by laparotomy • control group without surgery 	<ul style="list-style-type: none"> • no statistically significant pain reduction by adhesiolysis
Swank 2003 (307)	100	<ul style="list-style-type: none"> • adhesiolysis by laparoscopy • control group with purely diagnostic laparoscopy 	<ul style="list-style-type: none"> • no statistically significant pain reduction by adhesiolysis
Keitz 2006 (273)	25	<ul style="list-style-type: none"> • right paracolic adhesiolysis • control group with purely diagnostic laparoscopy 	<ul style="list-style-type: none"> • statistically significant pain reduction by adhesiolysis • no long-term results

3c: Psychosomatic/counselling therapies

Study	n =	Therapy	Result
Peters 1991 (127)	106	<ul style="list-style-type: none"> • multidisciplinary therapy including somatic, psychological, dietary and environmental factors • control group with laparoscopy and psychotherapy 	<ul style="list-style-type: none"> • statistically significant pain reduction through multidisciplinary treatment concept • good long-term effect
Farquhar	84	<ul style="list-style-type: none"> • medroxyprogesterone 	<ul style="list-style-type: none"> • statistically significant pain

1989 (268)		acetate 50 mg daily orally for 4 months with/without psychotherapy <ul style="list-style-type: none"> • control group with placebo with/without psychotherapy 	reduction by medroxyprogesterone acetate, psychotherapy and MPA in combination with psychotherapy <ul style="list-style-type: none"> • best pain reduction by MPA with psychotherapy • no long-term effect
Norman 2004 (274)	48	<ul style="list-style-type: none"> • two study arms: • writing down negative pain experiences • writing down positive pain experiences 	<ul style="list-style-type: none"> • no statistically significant pain reduction in the groups • women with high emotional ambivalence show tendency of therapeutic effect when they write down negative stress experiences
Onwude 2004 (275)	233	<ul style="list-style-type: none"> • laparoscopy with counselling using photos • laparoscopy with counselling without photos 	<ul style="list-style-type: none"> • no statistically significant pain reduction by counselling with photos
Ghaly 1994 (276)	90	<ul style="list-style-type: none"> • ultrasound and counselling for 4 to 9 months • control group without intervention 	<ul style="list-style-type: none"> • statistically significant pain reduction by intense counselling with regular ultrasound control • no long-term results

3d: Other therapies

Study	n =	Therapy	Result
Haugstad 2006 (115)	40	<ul style="list-style-type: none"> • somatocognitive therapy based on Mensendieck for 3 months in addition to gynaecological therapy • control group with standard gynaecological therapy only 	<ul style="list-style-type: none"> • statistically significant pain reduction and improvement of motor function through somatocognitive therapy • no long-term results
Brown 2002 (278)	32	<ul style="list-style-type: none"> • static magnetic fields for 2-4 weeks on abdominal trigger points • control group without therapy 	<ul style="list-style-type: none"> • statistically significant pain reduction by application of magnet after 4, but not after 2 weeks • no long-term results

8.1 Basic psychosomatic care

All forms of diagnosis and therapy are embedded in the doctor-patient relationship. By creating a therapeutic relationship, it is possible to give the patient adequate support in the diagnostic and particularly in the therapeutic phase. The therapy is based on a dialogue between doctor and patient which also addresses bio-psycho-social aspects. As a result of this therapeutic relationship, it may be possible to create placebo- or placebo-like effects in all forms of therapy (conversational, drug-based or surgical). Through basic psychosomatic care, the complex disease process is transformed into an aggregate diagnosis which needs to identify etiological links between psychological and somatic disease factors and to weigh them up in terms of their pathogenic relevance. The differential diagnosis will either be provided by the doctor him/herself or by drawing on the support of other medical disciplines or psychological psychotherapists.

In basic psychosomatic care, emotional therapy has a limited objective. By engaging in verbal intervention, doctors take on an extremely important, irreplaceable role in terms of making the indication and motivating the patient and the people around her. In basic psychosomatic care, the medical doctor may have to decide on the indication for psychotherapy. Patient selection for a certain type of therapy can only be made by a medical doctor with an additional qualification in psychotherapy or psychoanalysis or by a consultant in psychotherapeutic medicine. Basic psychosomatic care is always based on the current disease situation. It may involve an acute emotional crisis but also chronic diseases and impairments. The Guidelines on psychotherapy stipulate: "If a physician intends to provide basic psychosomatic care, he/she needs to have several years of experience as a self-employed doctor, knowledge in psychosomatic disease theory and reflected experience regarding the therapeutic relevance of the doctor-patient relationship". This requires:

- Theory seminars of at least 20 hours teaching knowledge about the doctor-patient relationship, knowledge and experience in psychosomatic disease theory and the distinction between psychosomatic disorders and neuroses or psychoses as well as knowledge in disease and family dynamics, group interaction, coping and differential patient selection for psychotherapy
- Reflection on the doctor-patient relationship through continuous work in Balint or encounter groups for at least 30 hours (i.e. at least 15 learning units for Balint groups)
- Learning and practicing verbal intervention techniques for at least 30 hours.

In real life, doctors would often wish to have more time for diagnosis, therapy and dialogue with the patient. Working in Balint groups enables doctors to develop self-awareness with the emphasis on doctor-patient interaction. Balint groups try to identify dysfunctional relationship patterns and learn more about the conflicts and emotional constitution of the patient in order to then verbalise it first in the Balint group and then with the patient. In this way, the doctor's own feelings and reactions can be better understood and analysed. At an early diagnostic stage, Balint groups can help to improve the doctor's sensitivity for the patient's unexpressed distress. The goal is to speak one language with the patient in order to adequately address her concerns, for which there may be no words at the beginning. Stigmatising or disparaging remarks can thus be avoided or discussed, compliance and the doctor's job satisfaction improve.

Within basic psychosomatic care, doctors and patients discuss whether the patient's symptoms are predominantly physical or psychosomatic in nature. This will determine the decision for the right therapy based on the therapeutic doctor-patient relationship. If a surgical or drug-based therapy is initiated, the gynaecologist should keep contact with the woman's GP. Chronic diseases such as chronic pelvic pain require long-term medical care since it is very rare for a single intervention to achieve a major therapeutic improvement or a complete cure.

In chronic pelvic pain cases, the doctor-patient relationship may often become unbalanced or unstable. If the medical intervention fails to succeed, the doctor may also become dissatisfied, angry or impatient. This emotional development can have serious consequences for the doctor-patient relationship and result in too early invasive diagnosis or therapy.

Statement

Basic psychosomatic care should be included in the treatment concept from the beginning.

8.2 Psychotherapeutic concepts

Many studies have shown that psychosomatic factors play a role in chronic pelvic pain. Difficulties often arise because many GPs or gynaecologists have insufficient psychosomatic knowledge and therefore neglect a psychosomatic therapeutic approach. It is also sometimes difficult to motivate patients with chronic pelvic pain to embark on psychotherapeutic treatment and to accept a psychosomatic interpretation of their disease (279).

As described above, psychosomatic diagnosis and if possible therapy should be integrated in the treatment concept at an early stage in order to prevent further chronification.

Current data are either based on only a small number of controlled studies or the psychosomatic therapy has been included in a multimodal treatment concept. With respect to the irritable bowel syndrome and fibromyalgia, the level of evidence for psychotherapy is 1a. A randomised placebo-controlled study by Farquhar et al. described a significant pain reduction achieved by progesterones in patients with pelvic varicosis (268). The pain relief improved further when the hormone treatment was accompanied psychotherapy. In the patient group receiving placebo, psychotherapy also led to pain relief. Peters et al. integrated psychosomatic treatment in a comprehensive multidisciplinary therapy concept and compared the patients undergoing this therapy with a group receiving standard gynaecological therapy (127). Holistic therapy including psychosomatic or psychological/psychiatric factors produced a statistically significant improvement. The fact that psychosomatic group therapy seems to help patients was shown by Albert et al. in a cohort study (280). The authors achieved pain relief, a reduced analgesics intake and fewer visits to the doctor as well as an increase in the number of women going to work. The inclusion criterion was that any gynaecological treatment must have been completed. Out of an initial 64 patients, 53 women completed their treatment; 39% of them were pain-free at the 1-year follow-up. The therapy concept consisted of group therapy on a psychosomatic and physiotherapeutic basis for 10 weeks combined with cognitive behaviour therapy.

Creating a healthy, trusting doctor-patient relationship is at the center of a successful therapy for patients with chronic pelvic pain. This requires good communication between doctor and patient. In such a relationship, it is possible to inform the patient that the inclusion of psychological factors is indispensable in order to get to the root cause of the disease and that it is possible to help patients in a psychosocial stress situation (215, 281-283). If patients understand this, it can make a major contribution to getting multidisciplinary treatment concepts with psychotherapeutic measures established successfully (see Chapter 8.6).

In a study on the patients' general body awareness, Haugstad et al. showed that women with chronic pelvic pain had a modified body image (284). For example, they had a poorer posture as well as altered movement and breathing patterns compared to women without chronic pelvic pain symptoms. As a consequence, the working group recruited 40 patients with chronic pelvic pain to conduct a controlled randomised study on the use of

Mensendieck's somatocognitive therapy and demonstrated that this form of therapy combined with gynaecological therapeutic intervention brings about an improvement of the motor function and a statistically significant reduction of the pain score (277). This is the only study on the subject of a special psychotherapeutic procedure. Therefore, the results are of limited validity.

Statement

Psychotherapy should be integrated into the treatment concept at an early stage.

8.3 Drug therapy

According to Reisner, the pharmacological therapy concepts in chronic pelvic pain are not much different from those for pain in other locations (22). This fact implies that there is currently no specific drug-based therapy available. In the US, Scialli published the results of an expert panel (20). It recommends the empirical use of non-steroidal analgesics, oral contraceptives or possibly antibiotics or spasmolytics if no likely cause can be diagnosed. If the patient does not respond to this drug therapy, it is likely that she is suffering from endometriosis or adenomyosis. As a next step, a GnRH therapy or laparoscopy is recommended. If the chronic pelvic pain responds to a GnRH analogue therapy administered *ex juvantibus*, the likelihood of the patient suffering from endometriosis increases.

8.3.1 Analgesics

There are no controlled studies on the therapy of chronic pelvic pain with COX2-inhibitors or non-steroidal anti-inflammatory drugs (NSAID). An increased effectiveness compared with placebo has not been proven. Therefore, patients should not be treated with COX2-inhibitors and NSAID. No controlled studies on the effectiveness of paracetamol and metamizol are available either. These two drugs are therefore not recommended. There are no controlled studies on chronic pelvic pain therapy using opiates. An increased effectiveness compared with placebo has not been proven. Therefore, patients should not be treated with opiates.

Statement

Analgesics should not be used for chronic pelvic pain over a prolonged period.

8.3.2 Antidepressants

Most publications on the use and effectiveness of antidepressive therapy are empirical data and case reports (285-287). Only two randomised controlled

studies on antidepressants have been published. On one hand, sertraline (serotonin re-uptake inhibitor) has been tested on 23 women with chronic pelvic pain (266). Compared with placebo, no improvement was achieved through this antidepressive medication. On the other hand, a more recent Austrian study showed a significant pain reduction under amitriptyline (267). However, this antidepressant was less effective than in the two control groups combining amitriptyline with the antiepileptic gabapentin or gabapentin alone. No placebo control group was examined. In an older review, the authors postulated that an empirical therapy was justified even if there was no formal evidence of the effectiveness of antidepressants for patients with chronic pelvic pain (288). This view is shared by more recent publications claiming that antidepressive medication improved the patients' quality of life (289). However, such recommendations always mention the need for a sound doctor-patient relationship and/or a multimodal concept including psychotherapy (288-290).

Statement

Antidepressive medication can be useful in individual cases, especially in the presence of a corresponding co-morbidity.

8.3.3 Other drug therapies

In a randomised controlled study, Stones et al. tested lofexidine hydrochloride (α_2 -adrenoceptor agonist) for chronic pelvic pain (270) and found no significant improvement over placebo (n=23). Other pharmacotherapeutic concepts, e.g. using hormonal drugs, are mainly found in the therapy of endometriosis and pelvic varicosis (see Chapter 8.4).

8.4 Surgical therapy

In principle, surgical intervention for chronic pelvic pain can have two objectives. On the one hand, surgery is indicated and frequently successful if a relevant pathological finding is suspected to be the potential cause of the symptoms even at the clinical stage. This is especially true for endometriosis, pelvic tumours etc. On the other, surgical procedures are performed for chronic pelvic pain whose merely symptomatic effect relies on the interruption or modulation of the afferent nervous or neural pain transmission from the pelvis.

8.4.1 Surgical therapy for chronic pelvic pain based on a clinical finding

In view of the widespread use of laparoscopy in modern surgery (minimally invasive surgery), we can assume that laparoscopic interventions were used in most studies cited. However, we would like to point out that laparoscopy is one possible surgical option. Open surgery will lead to the same

intraabdominal result and may be preferable in some cases depending on the clinical situation and the training and preferences of the surgeon. In this document, we can only refer to the ongoing debate on the pros and cons of the different surgical approaches but cannot elaborate on it.

Most surgical interventions in patients with chronic pelvic pain are performed to treat endometriosis and/or adhesions. As explained in detail above, a link between the organic pathology and the pain has been described, but this link does not constitute a general principle. Accordingly, the pain-related results of the surgical treatment of these diseases vary (291-294). The surgical therapy for endometriosis will be discussed in more detail in Chapter 8.5.1.

Adhesiolysis

There are many studies on the effectiveness of laparoscopic adhesiolysis in chronic pelvic pain patients (128, 295). In literature, the effectiveness of complete or partial adhesiolysis is seen controversially.

Fayez and Clark performed laparoscopic adhesiolysis using a laser in 156 patients. They report postoperative freedom from pain in no fewer than 88% of the patients. A reduction of pain was achieved in a further 9% (81). In a retrospective analysis with a follow-up of 6 to 18 months, Malik et al. also found a strong improvement of the pain after laparoscopic adhesiolysis (83). There was a benefit even for those patients in whom no complete adhesiolysis was achieved. The authors found that the intensity of pain as measured by a visual analog scale did not correlate with the extent of the adhesions. Kolmorgen et al. carried out a laparoscopic adhesiolysis in 153 women, 57.5% of whom had been suffering from chronic pelvic pain (296). They achieved a complete adhesiolysis in 86.9% of the patients. They sent questionnaires to these women after one to eight years. 38% reported no pain and 45.7% reported a clear improvement or said they were temporally pain-free, while 16.2% said their pain level had not changed. The only randomised controlled study published so far on this subject showed no statistically significant difference in 100 operated patients with respect to pain relief after laparoscopic adhesiolysis compared with purely diagnostic laparoscopy (120). Interestingly, both groups experienced a significant improvement of their quality of life. Other studies confirmed that simply carrying out a diagnostic laparoscopy without an intraabdominal, therapeutic intervention can lead to a pain reduction (297).

Steege et al. distinguished a "chronic pelvic pain syndrome" from mere pelvic pain (126). They defined a "chronic pelvic pain syndrome" as the combination of the corresponding symptoms with psychosocial aspects. The

following characteristics suggested the presence of a chronic pelvic pain syndrome: (I) The pain has persisted for six months or longer, (II) previous therapies resulted in incomplete pain reduction, (III) the pain does not correlate with tissue damage, (IV) functional loss and (V) vegetative signs of depression occur and (VI) the relationship and family dynamics have changed. According to Steege et al., the prognosis appeared determined by which of the two groups the patient belonged to. At follow-up after laparoscopic adhesiolysis, the pain in the group with a chronic pain syndrome had not improved to the same extent as in the group of patients with pelvic pain only. The result depended on the extent of the adhesions.

If an adhesiolysis is performed by laparotomy, the effect may be lower for this indication (272), but long-term data from comparative studies are missing. Technique (scalpel vs. laser dissection) also seems to have no decisive influence on the results (298).

Statement

Laparoscopy is recommended as a preferred therapeutic instrument for the surgical treatment of female chronic pelvic pain. At the same time, the pros and cons of repeat laparoscopy must be weighed up extremely critically.

Hysterectomy

Hysterectomy is an invasive therapeutic option to be considered only in cases of manifest organ change (e.g. uterus myomatosis, uterine adenomyosis). It has a particularly narrow indication in patients of reproductive age since issues of pain are always tied to issues of reproduction.

It should always be borne in mind that a woman identifies with her uterus in terms of her gender and her reproduction. Since patients with excruciating chronic pelvic pain often ask for a "radical" solution which they expect to result in a definitive cure, all biological, psychological and social factors must be considered when deciding on a hysterectomy.

There are limited data on hysterectomy in the context of chronic pelvic pain:

It is assumed that around 10% of the hysterectomies are performed because of chronic pelvic pain (299). On the whole, hysterectomy seems to produce a sustained pain reduction in 75% of the cases, although these results are not based on controlled-randomised studies (2). Carlson et al. analysed disease outcome after drug or surgical treatment in a prospective cohort study (300). They found that although some of the patients experienced a persistent improvement after drug treatment, a considerable number decided to have a hysterectomy at a later stage. If the patients continued with a non-surgical

approach, they still reported considerable pain after one year. If they underwent hysterectomy instead, this correlated strongly with a positive outcome. This is especially true for patients with a clear pathological finding such as symptomatic uterus myomatosis and endometriosis, particularly in the presence of uterine adenomyosis. Unfortunately, there is no suitable routine procedure for the preoperative histological confirmation of a uterine adenomyosis. In suspicious cases, however, vaginal sonography and in some cases MRI have proven effective (301). On the whole, hysterectomy can be regarded as the treatment of choice for uterine adenomyosis if the woman does not wish to have any (further) children (93).

In a study by Hillis et al., the special risk factors for persistent pain after hysterectomy were pain without visible organic pathologies, two previous pregnancies and low economic status (no health insurance) (302).

Further studies report a pain reduction after hysterectomy of between 70 and 90% (302-304). Nevertheless, a generous indication for hysterectomy in cases of chronic pelvic pain should be ruled out.

Statement

For chronic pelvic pain patients, hysterectomy is a final measure. It should only be performed if there is a manifest organic pathology. In particular, patient age and family planning status should be taken into consideration when making the decision for a hysterectomy. With the right indication, a substantial or complete pain reduction can be achieved.

8.4.2 Surgical intervention to influence pain transmission

Presacral neurectomy and uterosacral nerve ablation

A blockage of the superior hypogastric plexus (presacral neurectomy) is used as a palliative pain therapy mainly for malignancies but has also proven effective for painful non-malignant diseases (e.g. endometriosis) (305). However, the effectiveness of presacral neurectomy with or without dissection of the sacrouterine ligaments (LUNA = laparoscopic uterosacral/uterine nerve ablation) has not been demonstrated (91, 306). Chen et al. examined 655 patients after presacral neurectomy (307). The indications for the procedure were dysmenorrhea with or without endometriosis or adenomyosis as well as chronic pelvic pain with or without an organic finding. Depending on patient selection, a significant alleviation of pain was found in 52-77% of patients. In women with chronic pelvic pain, the success rate was 62%. The complication rate was 0.6%. Lee et al. carried out the intervention in 50 patients with a success rate of 63-77% and 4% complications (308). A further publication described postoperative pain reduction in 91% of the women (309).

On the whole, there are only empirical data and observational studies available on the subject of presacral neurectomy (307-314) so it is not possible to make a clear assessment of the method in terms of its effectiveness for chronic pelvic pain. The technique has not become established in Germany and must be regarded as experimental for these patients.

In a randomised controlled study on LUNA, the authors observed pain relief in patients with dysmenorrhea but not with non-cyclical chronic pelvic pain (271). Pain patients with minimal to moderate peritoneal endometriosis did not benefit from LUNA in addition to the laparoscopic removal of implants (315, 316).

Statement

LUNA and presacral neurectomy should not be routine measures in the treatment of chronic pelvic pain.

Neuromodulation and neurolysis

Neuromodulation is one possible method to relieve chronic pain (317). In this method, neural transmission is reversibly modulated. The electrical stimulation of GABA-ergic interneurons leads to an exaggeration of sensory information with consecutive modulation in the central nervous system. It is possible that the stimulation of peripheral nerves (PNS) is suitable for the treatment of chronic pelvic pain (317). Aboseif et al. found a reduction in pelvic pain by sacral neuromodulation, but no statistical significance was reached (318).

In some cases of retroperitoneal endometriosis with infiltration in the area of the plexus sacralis or the sciatic nerve, an improvement of previously intractable, intolerable pain may be possible by laparoscopic neurolysis (319). A new technique in this field is laparoscopic neuronavigation (LANN). In the pelvic retroperitoneum, somatic and autonomous nerves are exposed and electrostimulated in order to identify the nerves based on the effect achieved (320). In this way, the attempt is made to create a functional map of the pelvic autonomous nervous system. Alongside neurolysis, so-called neuroprostheses can be implanted laparoscopically to achieve neuromodulation (LION) to treat chronic pelvic pain (321). These techniques must be considered experimental.

Statement

Neuromodulation and neurolysis must be considered experimental procedures in the treatment of chronic pelvic pain.

8.5 Therapy of special diseases

8.5.1 Endometriosis

For the diagnosis and therapy of endometriosis, we refer to the current interdisciplinary S2k Guideline by the German Society for Gynaecology and Obstetrics (93).

Surgical therapy of endometriosis

The complete surgical removal of the implants is currently the therapy of choice for symptomatic endometriosis and has been corroborated by many empirical and retrospective data, but also by randomised studies (329, 330). In one study, laser laparoscopy resulted in a pain reduction by 62% compared with a control group undergoing purely diagnostic laparoscopy, who experienced a pain reduction of no less than 20%.

However, a trade-off is often necessary for women with a wish for children since this presupposes the preservation of the genital organs, which may mean that the complete resection which would be desirable to treat the disease is impossible. In such a patient, the operation must be less radical than would be possible otherwise (93).

In literature, various numbers have been published regarding the relapse frequency of endometriosis and the associated pain. They range from 15 to 100% (2, 98, 331).

Drug-based therapy of endometriosis

Endometriosis-associated pain can be treated both by provoking an acyclical hormonal status, i.e. by inducing a therapeutic amenorrhea or – non-specifically – by administering analgesics (93).

By suppressing the ovarian function, a regression of endometriotic implants can be achieved. For this purpose, GnRH analogues are more effective than oral contraceptives and progestins (322). These hormones improve the endometriosis-associated pain in the same way, but the side-effects are different (323-325). As a rule, the GnRHa are administered for 6 months to endometriosis patients suffering from pain. If the therapy is discontinued after three months, the effect on pain is the same, but the relapse-free interval will be shorter (94, 326). If a long-term therapy with GnRHa is applied, concurrent bone protection medication is indicated.

Alternatively, endometriosis-associated pain can be reduced by applying a progestin-releasing IUD (levonorgestrel) (327).

Non-steroidal antiphlogistics can be used non-specifically to treat endometriosis-associated pain (328).

Statement

If endometriosis has been confirmed as the cause of the chronic pelvic pain, the surgical (laparoscopic) removal of the implants is seen as the therapy of choice (depending on the situation, it may be followed by postoperative drug treatment). The decision about the therapy should be taken in full consideration of the patient's overall situation (e.g. a wish for children).

8.5.2 Therapy of pelvic varicosis

Various therapeutic concepts have been investigated for pelvic varicosis (138; 139; 142; 268; 332-342). As the link between pelvic varicosis and chronic pelvic pain has not been proven, these approaches must be viewed critically.

8.6 Further therapeutic concepts

8.6.1 Physical medicine/physiotherapy

When making recommendations for a temporary or long-term physiotherapeutic or physical treatment or training therapy, account must be taken of any concomitant diseases, the patient's personal preferences, the feasibility of the treatment in the individual situation as well as the cost of treatment. Physiotherapeutic measures have been studied by Peters et al. as part of multidisciplinary therapy (127). 106 patients participated. One year after the therapy, the group treated by physiotherapy in combination with other therapies achieved a statistically significant pain reduction. No studies on physiotherapy alone are currently available.

8.6.2 Acupuncture

In 1985, Gabelmann introduced a treatment concept based on ear acupuncture (343). 150 patients of a pain clinic were treated by acupuncture. The control group consisted of 150 chronic pelvic pain patients receiving conservative therapy. However, the inclusion criteria and measurement instruments in this study are unclear. Only 25% of all patients received a diagnostic laparoscopy. At the 1-year-follow-up, 68% of the acupuncture patients were pain-free (control group: 37%). Women suffering from pain for less than one year who had no previous operations, depressive disorders or pain in other locations had a better prognosis. A case report describes the successful use of acupuncture in a pregnant woman with chronic pelvic pain (344).

Statement

The limited data do not allow for the evaluation of acupuncture in the therapy of chronic pelvic pain.

8.6.3 Treatment of trigger points

Brown et al. conducted a controlled pilot study on the effect of magnets on abdominal trigger points (345). Pain relief occurred for the duration of the treatment, but there were not enough cases to draw any further conclusions. Slocumb achieved good success by injecting the trigger points with local anaesthetics (165). 89% of 131 patients reported an improvement of their symptoms, and 93% required five or less sessions. The follow-up period of this study was more than six months for 68% of the women. In a recent prospective study including 18 patients, the authors achieved a pain reduction in 72% of the patients and complete freedom from pain in 33% of the cases after only one injection of a local anaesthetic (346).

8.6.4 Reflexology

An article by Ercolani et al. describes a positive effect achieved by reflexology in 15 patients with chronic pelvic pain (347).

8.6.5 Biofeedback

One case report discusses the effectiveness of thermal biofeedback for endometriosis patients (348). It showed significant pain relief, reduced depression and anxiety and an improvement of individual stress management. However, the study is of limited value due to the very small number of cases (n = 5) and the lack of a control group.

8.6.6 Distension therapy

Heyman et al. examined the possibility of treating patients with chronic pelvic pain by manually distending painful structures in the pelvic floor area (349). 50 patients took part in the study, 25 of whom were randomised for therapy. The authors achieved significant pain relief compared with the control group. The study did not analyse long-term results.

8.6.7 Homeopathy

There are no studies on the subject of homeopathy. It cannot be recommended for women with chronic pelvic pain.

Statement

The limited data do not allow for an evaluation of interventions such as trigger point treatment, reflexology, biofeedback, distension therapy and homeopathy in the therapy of chronic pelvic pain.

8.7 Multimodal treatment concept

A multimodal treatment concept has been called for by many authors (127; 181; 350-362). It is assumed that a purely somatic treatment supports the patient in her view that her symptoms have only somatic causes. This makes it more difficult to implement psychosomatic treatment concepts (8).

As early as in the late 1980s, Rapkin et al. adapted the multimodal pain management concept for headaches and pain due to malignant diseases to the treatment of chronic pelvic pain and achieved good success in a pilot study (353). Kames et al. compared the success rate of an interdisciplinary training programme with the patients on the waiting list and reported a dramatic reduction of pain as well as of anxiety and depression (363). Moreover, the patients started to become professionally, socially and sexually active again. How long the success lasted was not analysed. Peters et al. directly compared a multidisciplinary approach with the standard procedure in a randomised controlled study (127) including 106 patients. At follow-up one year after the therapy, the multidisciplinary treatment group experienced a statistically significant pain relief. Rickert et al. think that regular conversations of a defined duration are important (364). The conversation should focus on the patient's compliance. If possible, doctors should cooperate with physio- and psychotherapists. The problem appears to be that many gynaecologists have no psychosomatic training and therefore only pursue somatic therapy concepts which subsequently contribute to chronification (365).

According to the German Operations and Procedures Code (OPS 8-918.x), multimodal pain therapy requires an interdisciplinary diagnostic work-up by at least three disciplines (the psychiatric, psychosomatic or psychological disciplines must always be represented). It is defined as the simultaneous application of at least three active therapies under medical supervision: psychotherapy (behavioural therapy, psychotherapy based on depth psychology), special physiotherapy, relaxation techniques, ergotherapy, medical training therapy, sensomotor training, workplace training, art or music therapy and other practicing therapies. It also involves reviewing the treatment progress through a standardised assessment by an interdisciplinary team (366).

The current British guideline on the diagnosis and therapy of IBS has awarded a moderate level of evidence and a qualified recommendation to the following psychological procedures: positive diagnosis and patient education, relaxation techniques, psychodynamic and cognitive behavioural therapy and hypnotherapy. The level of evidence for high-fibre diet, serotonin re-takeup inhibitors (paroxetine, fluoxetine), 5-HT₄ agonists (tegaserod) and 5-

HT3-antagonists (alosetron) is regarded as very high and a clear recommendation is given for these treatments. Alosetron and tegaserod have meanwhile been taken off the market due to rare but fatal side-effects. The level of evidence for probiotics and desimpramine is seen as moderate with a qualified recommendation. A low level of evidence and a qualified recommendation has been expressed for spasmolytics (mebeverine) and tricyclic antidepressants (amitriptyline, nortriptyline)(153).

Statement

The therapy of chronic pelvic pain requires a customised strategy. The implementation of psychosomatic therapy concepts in a multimodular approach should be ensured.

9 Preventive concepts

The enormous cost incurred by the diagnosis and therapy of chronic pelvic pain is a burden on the health system and makes prevention desirable. However, a preventive approach is a challenge because of the frequently unclear and multifactorial genesis of the disease.

Preventive concepts for female chronic pelvic pain should focus on the physical and psychological health of girls and women. They must integrate the biological, psychological, social and cultural background. Although no studies are available on prevention, some ideas about this concept can be developed.

9.1 Primary prevention

Gynaecologists and GPs are usually the primary physicians for women and accompany them through life, starting with childhood or adolescence and including pregnancy, childbirth and puerperium, reproductive age, menopause and old age. Crises can occur throughout these phases but can at the same time can be used positively. One idea of basic psychosomatic care is that gynaecologists and general practitioners should also be active in psychoeducation. For example, antenatal classes can be used to emphasise the importance of early bonding between mother and child. Talking about contraception can open the patient's mind for questions of sexuality and partnership. To this extent, the gynaecologist can play a role in primary prevention. Adequate postoperative pain therapy can also help to achieve primary prevention.

9.2 Secondary prevention

A substantial number of chronic pelvic pain patients have been the victim of physical and/or sexual violence (see Chapter 6.6.3). Addressing these questions when taking the patient's bio-psycho-social history and talking about these violent experiences is one way of avoiding the long-term effects of these traumatic events. Another possible preventive approach to chronic pelvic pain in the context of infection is to screen sexually active women (aged between 15 and 35) for chlamydia infection and to treat them with antibiotics if necessary (263, 367).

Many patients change from doctor to doctor (doctor hopping) or demand a referral for further therapies. On the other hand, late referrals to specialists/centres can cause chronification. A continuous doctor-patient relationship can avoid these two problems.

One component of secondary prevention is educational material such as brochures which can be helpful in the early and targeted diagnosis and treatment of chronic pelvic pain patients.

9.3 Tertiary prevention

Gynaecologists and general practitioners can use the doctor-patient relationship to avoid unnecessary treatment (non-specific antibiotic therapy, "incremental maiming of the internal genitals"). This can be a preventive measure against further chronification.

A special aspect concerns prevention in the doctor's interest. Patients with chronic pelvic pain sometimes create feelings of incompetence and frustration on the part of the doctor. Here, the doctor can him/herself contribute to prevention by participating in supervision and Balint groups.

In summary, preventive concepts should include:

- basic psychosomatic care
- early implementation of psychosomatic concepts
- no superfluous drug therapies and surgical intervention
- training and further training for doctors
- possible supervision and Balint group work for doctors.

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Annex 1: Methodology Report

Consensus process

Introduction

Guidelines are important instruments of quality management in medicine as well as supporting the decision-making process of doctors and patients. They have also been requested by health politicians. The continuous improvement of the methodological quality of guidelines is therefore an important goal.

The AWMF (Association of German medical societies) stages are defined as follows:

Stage 1	developed by an expert group in an informal consensus process
Stage 2	developed by an interdisciplinary expert group with a formal consensus process (nominal group process, Delphi method, formal consensus conference)
Stage 3	Guideline with all elements of a systematic development: formal consensus-finding (s.a.), systematic search and evaluation of literature as well as classification of studies and recommendations using the criteria of evidence-based medicine, clinical algorithms, outcome analysis, decision analysis

The text of this Guideline was designed as a Stage-2-guideline within the AWMF definition and meets the following criteria:

- interdisciplinary expert group with a formal consensus-finding process (group process, formal consensus conference)
- systematic search and evaluation based on the criteria of evidence-based medicine (the “level of evidence” (LOE) is specified, see table).

At its Board and Advisory Board meeting in May 2007, the German Society for Psychosomatic Gynaecology and Obstetrics decided that the existing guideline on chronic pelvic pain be upgraded from Stage 1 to Stage 2k. Dr. Friederike Siedentopf, Berlin, was entrusted with the management and coordination of the project.

Participating medical societies

In the selection of the members of the drafting committee, it was important that all medical disciplines relevant to the subject should be represented. For this purpose, the medical societies listed below were asked to appoint official representatives for the drafting of the Guideline.

- DGGG - German society for gynaecology and obstetrics
- AGE - Working group for gynaecological endoscopy (Reg.Soc.) of the DGGG
- AGII – Working group for infectiology and infection immunology of the DGGG
- DKPM – German college for psychosomatic medicine
- DGPM – German group for psychosomatic medicine
- DGSS – German society for pain research
- DGU – German urological society

Drafting method

Composition of the project group:

The project group is composed exclusively of colleagues dealing with chronic pelvic pain in a clinical and scientific capacity. The leading authors compiled the data for the different aspects of female chronic pelvic pain. For this purpose, each of them carried out a systematic literature search (MedLine, Pubmed). When a statement is made, the relevant level of evidence is mentioned. In addition, the existing guidelines and recommendations of other national and international societies were read and relevant statements integrated. The leading authors combined these texts into a single manuscript which was sent to all members of the project group. Each group member had the opportunity to suggest amendments and additions. The drafting process for stage-2 guidelines provides for at least one discussion and critical appraisal of literature by the consensus group. The literature mentioned in the draft guideline and/or discussed during the consensus process must therefore be known to the whole guideline-drafting group. Therefore, the members of the drafting group were asked to quote additional relevant literature from the respective disciplines together with the requests for amendment.

The project group "Guideline Chronic Pelvic Pain in Women":

Bernd Bergander, Berlin (DKPM)
 Dr. Winfried Häuser, Saarbrücken (DGSS)
 Prof. Dr. Heribert Kentenich, Berlin (DGPFPG)
 Dr. Petra Kölm, Berlin (DGPFPG)
 Prof. Dr. Werner Mendling, Berlin (AGII)
 Dr. Oliver Moormann, Düsseldorf (DGU)
 Dr. Rüdiger Müller, Königs-Wusterhausen (DGGG; AGE)
 PD Dr. Martina Rauchfuß, Berlin (DGPFPG; DGPM))
 Prof. Dr. Dietmar Richter, Bad Säckingen (DGPFPG)
 Dr. Friederike Siedentopf, Berlin (DGPFPG)

PD Dr. Helmut Sitter, Marburg (AWMF)

Prof. Dr. Uwe Ulrich, Berlin (DGGG, AGE)

The leading authors of the project are Dr. Siedentopf, Dr. Kölm and Prof. Kentenich.

Consensus process: Nominal group process

On 19 January 2008, the first consensus conference on the drafted source text (see above) was held. It was chaired by PD Dr. Sitter and minuted by Dr. Kölm and Dr. Siedentopf. The nominal group process was carried out as follows:

- Introduction into the planned nominal group process by the Chairman
- Silent brainstorming by the participants
- Collection of ideas using a flip chart
- Clarifying discussion
- All statements (pre-conceived and newly generated) were voted on by the participants.

During the discussion, most controversial passages of the source text were clarified. Many editorial changes were also unanimously adopted by the guideline group. Changes and additions to the Guideline due to the voting results of the nominal group process were made by the leading authors.

The meeting was attended by:

Dr. Bernd Bergander, Berlin

Dr. Winfried Häuser, Saarbrücken

Prof. Dr. Heribert Kentenich, Berlin

Dr. Petra Kölm, Berlin

Prof. Dr. Werner Mendling, Berlin

Dr. Oliver Moormann, Düsseldorf

Dr. Rüdiger Müller, Königs-Wusterhausen

PD Dr. Martina Rauchfuß, Berlin

Prof. Dr. Dietmar Richter, Bad Säckingen

Dr. Friederike Siedentopf, Berlin

PD Dr. Helmut Sitter, Marburg

Prof. Dr. Uwe Ulrich, Berlin

During the consensus meeting, the whole text was reviewed. In addition to the pre-circulated manuscript, ideas were generated by the participants of the meeting. The group meeting was facilitated by beamer presentation. The manuscript reviewed in Berlin was subjected to a second editorial review by the leading authors and circulated again prior to the second consensus

conference held on 17 May 2008 in Berlin. The text was voted on in a nominal group process chaired by PD Dr. Sitter.

The participants of the meeting were:

Dr. Bernd Bergander, Berlin

Dr. Winfried Häuser, Saarbrücken

Prof. Dr. Heribert Kentenich, Berlin

Dr. Petra Kölm, Berlin

Dr. Oliver Moormann, Düsseldorf

Dr. Rüdiger Müller, Königs-Wusterhausen

PD Dr. Martina Rauchfuß, Berlin

Prof. Dr. Dietmar Richter, Bad Säckingen

Dr. Friederike Siedentopf, Berlin

PD Dr. Helmut Sitter, Marburg

Prof. Dr. Uwe Ulrich, Berlin

Final consent to the Guideline by the project group

After presentation of the comments by all above-mentioned representatives of the medical societies, a further editorial review was carried out by the leading authors. This revised version was sent to all members of the project group with the request to make final corrections and adopt the text. The leading authors again amended the text, which was circulated again and now has the support of all members of the working group. This means that all statements in the Guideline have consensus level A (95% of participants were in favour). All listed members of the societies expressed their consent to the chapters dealing with their respective discipline. These declarations of consent have been addressed to the guideline coordinator in writing.

Final consent to the Guideline by the Chairs of the medical societies

The final consent was given by the Chairs of the medical societies involved.

Any necessary changes were also integrated into this final version.

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Annex 2: Evaluating the level of evidence (LOE) of studies

As in the present case, systematic literature searches can result in a large number of relevant studies. But not everything that has been published is worth using as the basis for a guideline. For this reason, international experts have developed a system to classify studies and publications by their level of evidence to put them into a corresponding hierarchical order. The higher the quality of a study, the more reliable are the recommendations based on it. The system which has been set up distinguishes between studies expected to provide information about diagnosis, therapy, prognosis or economic issues.

The following table on literature evaluation, which is also recommended by AWMF, was developed by the Oxford Centre for Evidence-based medicine.¹ The abbreviation LOE stands for the level of evidence assigned to a publication. The LOE levels range from 1 to 5. Level 1a is the highest level of evidence assigned to extremely high-quality, carefully conducted and documented studies. LOE 5 is awarded to publications simply reflecting an expert opinion. These publications may be used occasionally for the guidelines because the authors tend to be highly experienced experts in their fields who summarise current thinking and knowledge in their article without relying on a study.

In the short version "Chronic Pelvic Pain in Women", reference is frequently made to an LOE. Each LOE refers to the source just quoted. In the drafting process, the LOE is first defined, and then the literature is evaluated by the interdisciplinary drafting committee. Both facets put together make up the "statements."

¹ The system was developed and published in 2001 by Bob Phillips, Chris Ball, Dave Sackett, Doug Badenoch, Sharon Straus, Brian Haynes, Martin Dawes. The German translation has been drafted by the Department of Health of the University of Hamburg and has been authorised by Bob Phillips. We thank the Department of Health for the publication permission.

Table: Schematic classification of the Level of Evidence (Oxford Centre for Evidence-based Medicine)

Minimum requirements for studies of the respective level of evidence for the purposes of:

Level	Therapy/prevention/aetiology/harm	Prognosis	Diagnosis	Differential diagnosis/symptom prevalence study	Economic and decision analyses
1a	Systematic review (SR) (with homogeneity) of randomised controlled trials (RCT)	SR (with homogeneity) of inception cohort studies; CDR (clinical decision rule) validated in different populations	SR (with homogeneity) of Level 1 diagnostic studies; CDR with 1b studies from different clinical centres	SR (with homogeneity) of prospective cohort studies	SR (with homogeneity) of Level 1 economic studies
1b	Individual RCT (with narrow Confidence Interval)	Individual inception cohort study with > 80% follow-up; CDR validated in a single population	Validating cohort study with good reference standards; or CDR tested within one clinical centre	Prospective cohort study with good follow-up	Analysis based on clinically sensible costs or alternatives; systematic review(s) of the evidence; and including multi-way sensitivity analyses
1c	All or none§	All or none case-series	Absolute SpPins and SnNouts	All or none case-series	Absolute better-value or worse-value analysis
2a	SR (with homogeneity) of cohort studies	SR (with homogeneity) of either retrospective cohort studies or untreated control groups in RCTs	SR (with homogeneity) of Level >2 diagnostic studies	SR (with homogeneity) of 2b and better studies	SR (with homogeneity) of Level >2 economic studies
2b	Individual cohort study (including low quality RCT; e.g., <80% followup)	Retrospective cohort study or follow-up of untreated control patients in an RCT; Derivation of CDR or validated on splitsample only	Exploratory cohort study with good reference standards; CDR† after derivation, or validated only on split-sample or databases	Retrospective cohort study, or poor follow-up	Analysis based on clinically sensible costs or alternatives; limited review(s) of the evidence, or single studies; and including multi-way sensitivity analyses
2c	„Outcomes“ Research; Ecological studies	„Outcomes“ Research		Ecological studies	Audit or outcomes research
3a	SR (with homogeneity) of case-control studies		SR (with homogeneity) of 3b and better studies	SR (with homogeneity) of 3b and better studies	SR (with homogeneity) of 3b and better studies
3b	Individual Case-Control Study		Non-consecutive study;	Non-consecutive cohort study, or	Analysis based on

			or without consistently applied reference standards	very limited population	limited alternatives or costs, poor quality estimates of data, but including sensitivity analyses incorporating clinically sensible variations.
4	Case-series (and poor quality cohort and casecontrol studies)	Case-series (and poor quality prognostic cohort studies)	Case-control study, poor or nonindependent reference standard	Case-series or superseded reference standards	Analysis with no sensitivity analysis
5	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles"	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles"	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles"	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles"	Expert opinion without explicit critical appraisal, or based on economic theory or "first principles"

Annex 3: List of authors*bitte einfügen*