

THE MAIN CAUSES OF DEVELOPMENT AND CONTEMPORARY TENDENCIES IN CLINICAL COURSE PECULIARITIES OF PELVIC INFLAMMATORY DISEASES IN WOMEN

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The article presents the comparative analysis of peculiarities and tendencies in the clinical course of pelvic inflammatory diseases (PID) for the period of 25 years. 1941 patients with PID were followed-up during the period 1981 to 2006. The tendency to the increase of chronic and destructive forms of PID has been revealed. In the etiology of the disease the prevailing of microbial associations with predomination of opportunistic flora as well as the increase of the role of sexually transmitted infections had been noted.

Pelvic inflammatory diseases (PID) keep the leading position within the structure of gynecological morbidity being the commonest cause of reproductive health disturbances in women [1, 3, 5, 7, 8]. The age of women suffering from PID becomes significantly younger. 70% of patients with salpingitis are under 25, 75% of patients had no labors [7, 8].

The comparative analysis of the onset and the development of PID in patients who had undergone treatment in the curative institutions of Ufa and Kemerovo cities over a period of 25 years (1981-2006) had been performed to estimate the clinical course peculiarities of PID.

Materials and methods

1941 patients with PID aged 16 to 48 were followed-up. In the period 1981 to 1988 there were 470 follow-ups, in the period 1989 to 1996 the follow-ups numbered 703 and in the period 1997 to 2006 they numbered 768. The morbidity pattern of PID is shown in table 1. The study was based on the unique scheme and included studying complaints, anamnesis, general and gynecological status using laboratory and instrumental methods. Microflora of the abnormal discharge from the cervical canal, from the abdominal cavity and the content of abscesses were studied as well. All patients had undergone ultrasound examination of the organs of small pelvis. 136 patients had undergone laparoscopy for the diagnosis and treatment, 125 patients had undergone laparotomy.

Table 1. Structure of PID

Age	The forms of disease								
	Salpingo-oophoritis			Salpingo-oophoritis in a combination with endomyometritis			Salpingo-oophoritis in a combination to a pelvioperitonitis and tubo-ovarian abscess		
	Terms of supervision on years			Terms of supervision on years			Terms of supervision on years		
	1981-1988	1989-1996	1997-2006	1981-1988	1989-1996	1997-2006	1981-1988	1989-1996	1997-2006
< 20	32	101	91	21	68	35	15	16	11
21-25	83	99	122	45	49	37	31	50	17
26-30	64	34	70	50	32	31	17	19	58
31-35	26	71	46	29	44	24	17	23	78
>36	12	39	32	12	15	14	16	43	102
In all	217	344	361	157	208	141	96	151	266

Results and discussion

The performed comparative analysis proves salpingo-oophoritis to be the prevailing form of PID, the highest morbidity rate for this pathology being for ages 21 to 25. It should be noted that this form of PID mostly occurred in age group under 20. This situation is associated with the change in the beginning of the sexual activity. In 1980s the major part of women began their sexual activity over 19 and the rate of early aged sexual activity was only 5, 4%. But during last 15 years 17% of women began their sexual activity under 17. It is rather notable that in the period 1981 to 1988 the acute forms of salpingo-oophorites prevailed (67%) but in the period 1989 to 1996 their number decreased to 48, 4% and the recurrence of chronic inflammatory process (74, 5%) prevailed in the period 1997 to 2006. In addition, the number of cases with the severe course had increased (34, 6% in 1997-2006 and 20, 4% in 1981-1988). During last 15 years the statistically evident ($p=0,0376$) increase of the destructive forms of PID from 13, 4% in 1989-1996 to 17, 2% in 1997-2006 was marked, they mostly prevailing in women aged over 36 (44, 5% in 1997-2006). In 60, 9% of cases the tubo-ovarian abscess (TOA) prevailed. Diffuse purulent peritonitis developed in 7% of patients with ruptured TOA, 11, 7% of patients showed the development of interintestinal abscesses as a result of microperforation in TOA. The development of destructive PID forms was caused by the prolonged use (over 5 years) of intrauterine device (IUD). The mean duration of IUD use in patients of this group was ($M\pm m$) 6, $1\pm 0,3$ years. During last 10 years the decrease of the destructive forms in patients under 25 was directly associated with declining popularity of this kind of contraception in young women. The development of destructive forms in women of this age group had mainly social cause: drug using, having several sexual partners. The social status of patients with inflammatory diseases of uterine appendages has significantly changed. For instance, in 1980s the patients with PID (59,

1%) engaged in occupational physical activity prevailed and the part of the unemployed was 3, 3% whereas during last 15 years women with mental occupational activity prevailed (39, 6%), the part of the unemployed (up to 34%) having increased significantly. The importance of social factors in the development of PID is supported by the data of other researchers [8, 9]. It should be noted that the significant change of factors contributing to the development of inner genitals inflammatory process had taken place (fig.1). In 1981-1988 these factors most frequently were: pregnancy interruption (23, 7%) and the next menses. In 1997-2006 the development of PID was most frequently caused by intrauterine device use. Very often the onset of the disease was registered (11%) after the beginning of sexual activity. The number of PID increased twice after the surgical and invasive diagnostic procedures, nowadays it being caused by wide scale surgical activity and the increase of using the invasive diagnostic manipulations in obstetrics and gynecology.

The performed study of the etiological structure of PID has also allowed to identify the characteristic tendencies. In 1981-1988 monoinfection played the primary role in the etiology of inflammation and the main causative agents were staphylococcus (66.7%) and colibacillus (14, 8%) [6]. Associations of 2 to 3 causative agents (staphylococcus, streptococcus, proteus) were in 18, 5%. Later staphylococcus had lost its leading significance and the frequency of its revealing in associations of microorganisms had decreased to 11, 2% in the period 1989 to 1996. The combined microflora (2 to 5 causative agents) was revealed most frequently (38, 8%) during this period. In the same period new microbial associations such as *Klebsiella pneumoniae*, *Corynebacterium*, *Gardnerella vaginalis* had appeared. Anaerobic microflora was revealed in 15, 5% of cases with the destructive forms of the disease, in 2, 6% of cases actinomyces were revealed. At the same time the role of sexually transmitted infections (STI) had greatly increased. For in-

stance, *Chlamydia trachomatis* were revealed as the components of microbial association in 12% of cases.

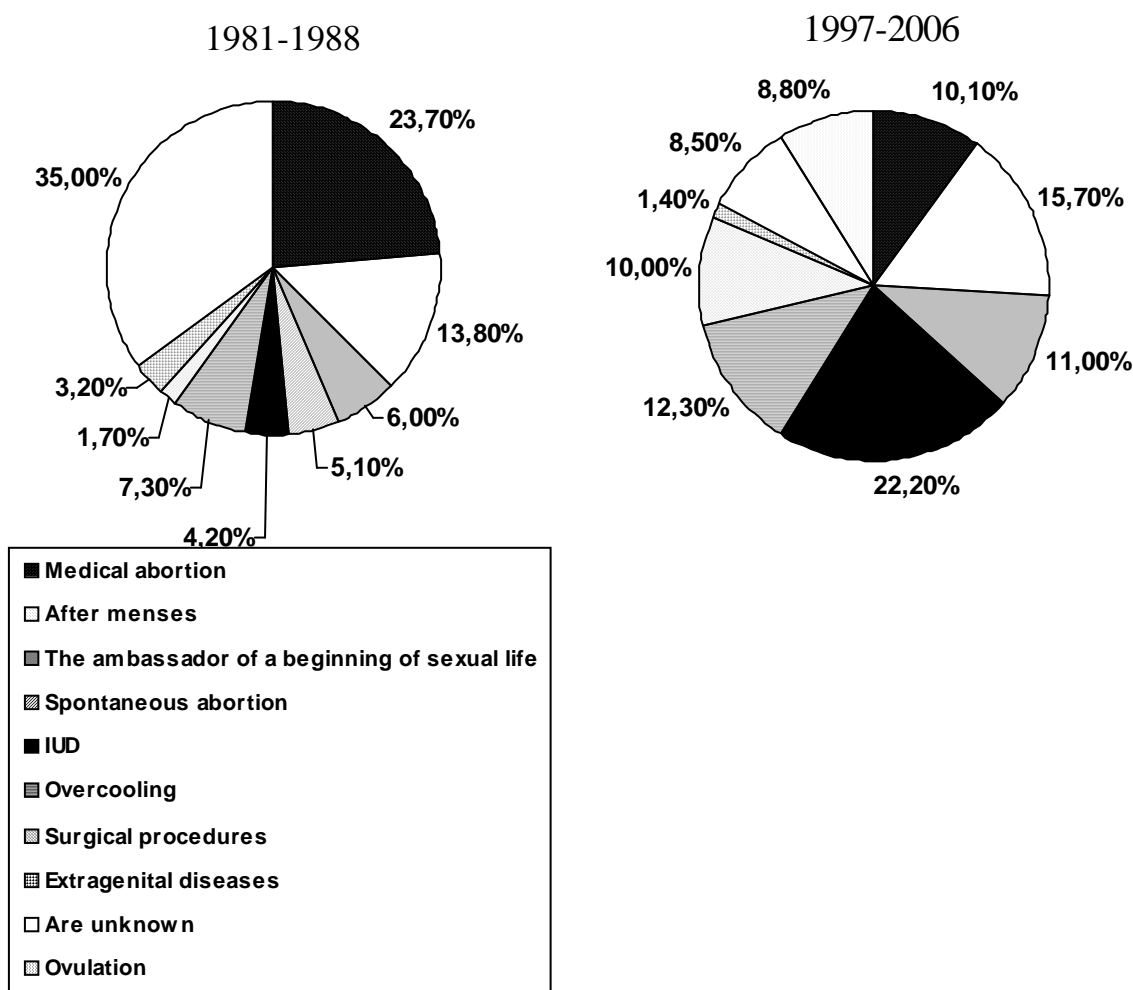


Figure 1. The basic reasons promoting occurrence of disease

The etiological structure of PID in contemporary conditions has got the mixed character [4]. The associations of 3 to 7 microorganisms (52%) are frequently revealed. Among the associations in 18, 7 % of cases enteric bacteria are revealed, in 16, 6% - streptococcus, in 10, 1% - corynebacterium, in 9, 35% - ureaplasma, in 6% - strict anaerobes and in 1, 9% - mycoplasma. The role of chlamydia infection persists to be significant (18, 75%). The identification rate of *Neisseria gonorrhoeae* had decreased to 5, 5% of cases. The rate of disbiotic vaginal conditions had sharply increased, it being 72, 8% nowadays.

The revealed increased role of opportunistic microflora in PID development suggests that today the inflammatory diseases of uterine appendages develop mostly being associated with the disturbances of natural defense factors. In the majority of cases the main role in this process is played by irrational antimicrobial therapy. For instance, 67% of patients with diagnosed vaginal dysbiosis in whom the association of saprogenic microorganisms was revealed had undergone self-medication by wide spectrum antimicrobials before the admission to the hospital.

The practical interest arises the time period from the onset of the disease and the admission to the hospital. On the first day of

the onset of the disease 19, 7 % of women were admitted to the hospital in 1981-1988, during the three days from the onset the rate of the admitted was 31, 1%, the majority (83, 4%) of women consulted a doctor during the period of the initial 7 days. In 1997-2005 only 3, 4% of women consulted a doctor on the first day, 13, 8% - during 3 days, 61% - during 7 days. The duration of the disease before the admission to the hospital was ($M \pm m$) 8, $7 \pm 0, 5$ days that proves the late diagnosis. Statistically the amount of hospitalized patients with PID has evidently decreased ($p=0.0083$) among all hospitalized gynecological patients (22, 9% in 1981-1988 and 15, 0% in 1997-2006), the number of patients with severe purulent inflammatory diseases having significantly increased. The highest increase of this pathology (by 50%) was in age group over 36. The additional difficulties in their treatment were associated with antimicrobial medication during 2 weeks to 1 month before hospitalization. The number of complicated purulent PID requiring emergent surgery on the day of admission has also increased from 2, 6% in 1989-1996 to 9, 6% in 1997-2006, over the half of patients requiring radical surgery (extirpation of uterine with uterine appendages or with uterine tubes). The noted changes are associated with the fact that currently the inpatients have more severe forms of diseases than in 1981-1988, patients with mild forms having been treated in outpatient departments. For instance, in 1981-1988 the majority of patients (67, 4%) were admitted to the hospital in satisfactory condition, 30, 6% patients had the condition of middle severity, 2% of patients were in bad condition. Currently the bad condition is registered on admission to the hospital in 10, 3% of patients, the condition of middle severity – in 44% of patients and satisfactory condition – in 45, 7% of patients. At the same time the amount of latent forms of the diseases keeps high (29, 3%). In 1989-1996 all hospitalized patients with TOA had un-

dergone radical surgery but in 1997-2006 these surgical procedures were performed in 65, 5% of cases only, 18, 75% of surgeries having been organ saving procedures using endoscopic techniques.

The frequency of revealing the symptoms of PID within the analyzed period (fig. 2) should be noted. The predominant complaint of patients with PID was the pain in the low abdominal regions. In 1981-1988 about 90.9% of patients characterized the pain as mild and dull whereas in 1997-2006 this character of the symptom was marked in 44% of patients only, the majority having complained of intensive dull and colicky pain radiating to the sacral bone, rectum and perineal area. Recently the patients with PID complained of disuretic condition (18, 5% in 1981-1988 and 40, 5% in 1997-2006) mostly due to the spread of sexually transmitted infections (STI) among this group of patients. Besides, 21, 5% of patients noted the menses disorder, 31% had gastrointestinal symptoms (nausea and vomiting, bloating, diarrhea) and 90, 5% complained of pathologic discharge from the genitals. Pathologic discharge was mostly noted associated with salpingo-oophoritis and endometritis and with TOA.

During last years most hospitalized patients with PID had the marked temperature reaction. The mean values were ($M \pm \delta$) 37, $7 \pm 0, 7$. On gynecological examination the thickened, infiltrated and painful uterine appendages were revealed in most patients (44, 8%). During the first examination it was not possible to palpate the uterus and the uterine appendages in 27, 6% of patients due to the tension of frontal abdominal wall and sharp pain on palpation. In 18, 1% of patients a space-occupying lesion in the uterine appendages area was identified, 7, 8% of patients had the adhesion mass of the abdominal cavity organs and 1, 7% of patients experienced tenderness on palpating the uterine appendages area and painful tractions posterior the cervix of the uterus.

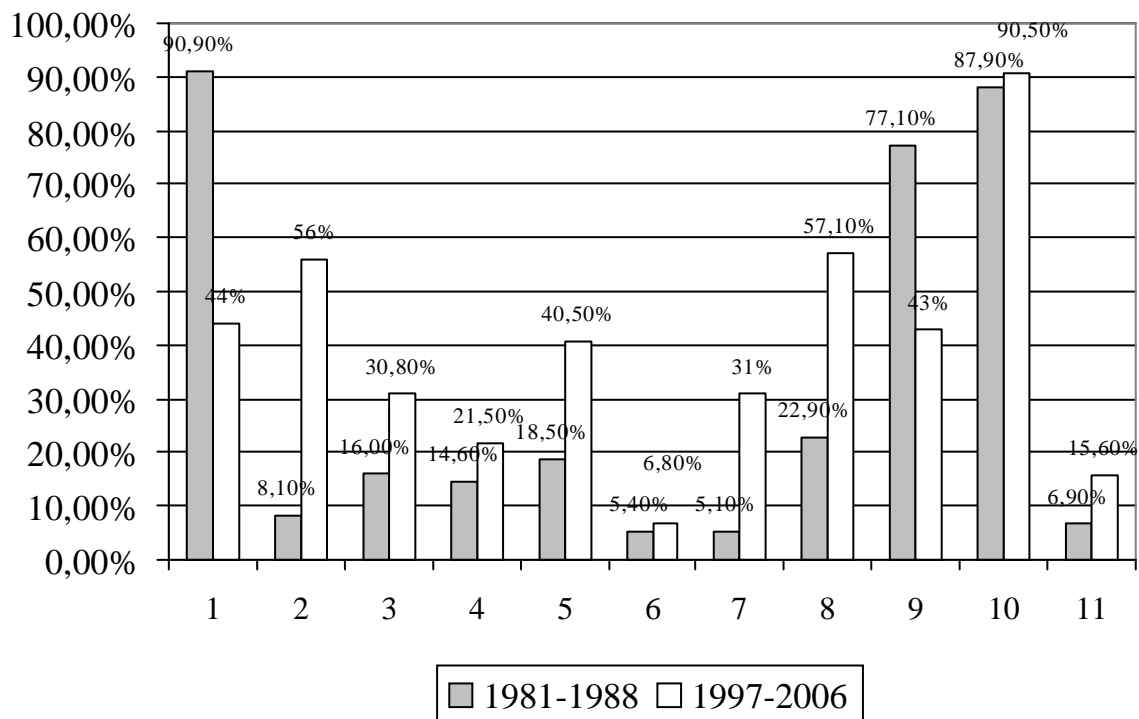


Figure 2. Frequency of revealing of symptoms of PID at an investigated quota of the patients

1 – moderate pain, 2 - sharp pain, 3 – common weakness, fatigue, 4 – infringement of a menstrual cycle as a menometrorrhagia, 5 – disuretic condition, 6 - infringements of a water exchange (thirst, dryness in a mouth, dry language), 7 – nausea and vomiting, 8 – hyperthermia, 9 – subfebrile temperature reaction, 10 – leucorrhoea, 11 – infertility

The peripheral blood samples have a number of peculiarities today. Moderate leukocytosis was revealed in less than a half of patients with acute inflammatory diseases of uterine appendages (21, 1%), the erythrocytes sedimentation rate (ESR) appeared to be increased in less than a half of the examined (43, 1%). The clinical pattern of contemporary acute PID was proved by laboratory findings in complex only, every isolated routine laboratory finding having been informative in less than half of cases. The common laboratory investigations in case on infectious toxic form of acute PID were not always informative. Thus, the expected leukocytosis was proved only in 25, 2% of patients, the band forms shift in the leukocytic formula was observed in 33, 9% and the increased ESR – in 33, 9%. The values of C-reactive protein were from moderate to

highly positive in 30, 9% of patients with exacerbation of chronic PID. At the same time the endogenic intoxication rate was high, the mean values of intoxication leukocytic index being – 4, 1±0, 5. One can resume PID to have typical symptoms in 50% of patients. However, in latent forms of the disease the same pathogenetic alterations are observed as in typical forms of PID because slight atypical clinical symptoms are frequently associated with deep involvement of the inner genital organs tissues [8].

Thus the performed analysis had revealed a number of peculiarities in the pattern and clinical course of contemporary PID that consequently requires certain changes in the traditional approach to managing the patients with this pathology. Prevention and treatment of chronic forms of PID is the most difficult problem, the commonest mis-

take being the irrational use of antibacterial agents. In many cases women have been medicating with antibiotics of various groups including the reserve agents that results in cultivation of strains resistant to antibiotics, vegetation of opportunistic flora, allergic reactions, suppression of the immune system functions [2].

Conclusions

1. The significant tendency to the increase of chronic diseases of uterine appendages and mild or latent forms of inflammation has been observed recently. Social, behavioral, genital and extragenital risk factors contribute to the development of inflammatory process in inner genitals and influence the character of its development and the course, the microbial associations of opportunistic microorganisms being predominant in the genesis of PID.

2. High incidence of the destructive PID forms development associated with the use of IUD makes it necessary to use this contraceptive device with more restrictions. Contemporarily it may be recommended to women who had already fulfilled their reproductive function.

3. High incidence of generative function disturbances, as the consequence of PID, requires rational therapy at minimal diagnostic indicators of the inflammatory process as

well as rehabilitative measures after the discharge from the hospital.

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