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## 生殖道感染类型分布及其对女性血清炎症因子、性功能和心理状态的影响\*

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**摘要 目的:**了解女性生殖道感染类型分布情况,分析生殖道感染对女性血清炎症因子、性功能和心理状态的影响。**方法:**选择2016年5月~2018年8月到我院就诊的生殖道感染女性患者60例(研究组),另选取同期到我院进行健康体检的健康女性60例(对照组)。统计研究组患者生殖道感染的感染类型,并比较两组血清炎症因子、性功能和心理状态情况。**结果:**60例生殖道感染患者感染类型以宫颈炎(33.33%)、非特异性阴道炎(26.67%)居多。研究组血清肿瘤坏死因子- $\alpha$ (TNF- $\alpha$ )、白细胞介素-6(IL-6)以及白细胞介素-8(IL-8)水平分别为(144.38 $\pm$  31.85)ng/mL、(73.85 $\pm$  15.73)ng/mL、(218.64 $\pm$  43.28)ng/mL,均高于对照组的(99.01 $\pm$  22.25)ng/mL、(40.27 $\pm$  10.52)ng/mL、(113.82 $\pm$  26.08)ng/mL,差异有统计学意义(均 $P < 0.05$ )。研究组性欲、高潮频数、性满意度、性焦虑、配偶高潮频数、配偶性满意度评分分别为(3.08 $\pm$  0.92)分、(4.38 $\pm$  1.01)分、(2.71 $\pm$  1.07)分、(3.66 $\pm$  1.30)分、(2.68 $\pm$  1.01)分、(2.95 $\pm$  1.04)分,均低于对照组的(3.84 $\pm$  0.51)分、(4.92 $\pm$  0.32)分、(3.87 $\pm$  0.47)分、(4.18 $\pm$  0.54)分、(3.82 $\pm$  0.38)分、(3.97 $\pm$  0.41)分,差异有统计学意义(均 $P < 0.05$ )。研究组健康问卷抑郁量表(PHQ-9)与广泛性焦虑评定量表(GAD-7)评分分别为(16.35 $\pm$  5.88)分、(13.87 $\pm$  3.73)分,均高于对照组的(5.15 $\pm$  1.76)分、(5.89 $\pm$  1.39)分,差异有统计学意义(均 $P < 0.05$ )。**结论:**女性生殖道感染以宫颈炎和非特异性阴道炎为主,生殖道感染会导致女性患者血清炎症因子水平显著升高,性功能降低,同时对患者心理状态也存在一定影响,因此,在临床工作中应予以患者及时有效的干预,从而改善患者性功能以及心理状态。

**关键词:**生殖道感染;女性;炎症因子;性功能;心理状态;影响

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## Distribution of Reproductive Tract Infection Types and Its Influence on Serum Inflammatory Factors, Sexual Function and Psychological State in Women\*

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**ABSTRACT Objective:** To understand the distribution of female reproductive tract infection types, and to analyze the influence of reproductive tract infection on female serum inflammatory factors, sexual function and psychological state. **Methods:** 60 female patients with reproductive tract infections who were treated in our hospital from May 2016 to August 2018 were selected (study group), and 60 healthy women who came to our hospital for physical examination in the same period were selected (control group). The infection types of reproductive tract infection in the study group were analyzed, and the serum inflammatory factors, sexual function and mental state of the two groups were compared. **Results:** Cervicitis (33.33%) and nonspecific vaginitis (26.67%) were the most common types of infection in 60 patients with genital tract infection. The levels of serum tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ), interleukin-6 (IL-6) and interleukin-8 (IL-8) in the study group were respectively (144.38 $\pm$  31.85) ng/mL, (73.85 $\pm$  15.73) ng/mL, and (218.64 $\pm$  43.28) ng/mL, respectively, which were higher than (99.01 $\pm$  22.25) ng/mL, (40.27 $\pm$  10.52) ng/mL, (113.82 $\pm$  26.08) ng/mL in the control group, the difference was statistically significant ( $P < 0.05$ ). The scores of sexual desire, orgasm frequency, sexual satisfaction, sexual anxiety, spousal climax frequency and spousal satisfaction in the study group were respectively (3.08 $\pm$  0.92) scores, (4.38 $\pm$  1.01) scores, (2.71 $\pm$  1.07) scores, (3.66 $\pm$  1.30) scores, (2.68 $\pm$  1.01) scores, (2.95 $\pm$  1.04) scores, which were lower than (3.84 $\pm$  0.51) scores, (4.92 $\pm$  0.32) scores, (3.87 $\pm$  0.47) scores, (4.18 $\pm$  0.54) scores, (3.82 $\pm$  0.38) scores and (3.97 $\pm$  0.41) scores in the control group, the difference was statistically significant ( $P < 0.05$ ). The scores of Health Questionnaire depression scale (PHQ-9) and Generalized Anxiety Rating Scale (GAD-7) in the study group were respectively (16.35 $\pm$  5.88) scores and (13.87 $\pm$  3.73) scores, which were higher than (5.15 $\pm$  1.76) scores and (5.89 $\pm$  1.39) scores in the control group, the difference was statistically significant ( $P < 0.05$ ). **Conclusion:** Cervicitis and nonspecific vaginitis are the main types of female reproductive tract infection, genital tract infection can lead to a significant increase the levels of serum inflammatory factors and a decrease in sexual function in female patients, at the same time, it also has a certain influence on the patient's psychological

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state, in clinical work, patients should be timely and effective intervention, so as to improve the patient's sexual function and psychological state.

**Key words:** Reproductive tract infection; Female; Inflammatory factors; Sexual function; Psychological status; Influence

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## 前言

近年来随着人们知识文化水平和自身健康意识的提高,女性生殖道感染是威胁女性生命健康的常见疾病之一,因近年来发病率持续升高越发受到重视<sup>[1]</sup>。女性生殖道感染作为临床上较为常见的疾病之一,其致病微生物可促使周围器官、组织发生炎症反应,从而可能导致盆腔炎<sup>[2]</sup>、外阴炎<sup>[3]</sup>、阴道炎<sup>[4]</sup>、子宫内膜炎<sup>[5]</sup>以及宫颈炎<sup>[6]</sup>等多种炎症疾病,且上述炎症疾病通常反复发作,严重影响了患者的身心健康。有报道显示,如生殖道感染如果未被及时发现并予以针对性治疗,随着病情的不断进展可能会引发不孕、流产、异位妊娠、早产以及新生儿感染等一系列不良后果<sup>[7,8]</sup>。目前,临床上对女性生殖道感染的研究大部分仅限于治疗以及干预措施方面,从而忽视了生殖道感染对女性患者的心理状态以及性功能等方面的影响。鉴于此,本文通过研究生殖道感染对女性的血清炎症因子、性功能和心理状态的影响,旨在为临床女性生殖道感染的治疗方案制定以及预后评估提供参考依据,现作以下报道。

## 1 资料与方法

### 1.1 一般资料

选取2016年5月~2018年8月到我院就诊的生殖道感染女性患者60例,记为研究组。另选取同期于我院进行健康体检的健康女性60例记为对照组。纳入标准:(1)研究组女性均经临床检查并经影像学检查确诊为生殖道感染;(2)夫妻常年同居,且丈夫性功能正常;(3)所有女性均已婚,且年龄在24~45岁之间;(4)入院前未接受抗炎、抗抑郁等相关治疗;(5)均签署了知情同意书。排除标准:(1)伴有性病者;(2)正参与其他研究者;(3)存在精神疾病或交流沟通障碍者;(4)合并心、肝、肾等脏器功能严重障碍者。其中研究组年龄25~44岁,平均年龄(32.35±4.32)岁;怀孕次数1~4次,平均怀孕次数(2.87±0.32)次;流产次数1~3次,平均流产次数(2.01±0.52)次。对

对照组年龄24~45岁,平均年龄(32.41±4.39)岁;怀孕次数1~5次,平均怀孕次数(2.91±0.33)次;流产次数1~3次,平均流产次数(2.02±0.53)次。两组年龄、怀孕次数以及流产次数比较无差异( $P>0.05$ ),具有可比性。

### 1.2 研究方法

(1)由我院专业医务人员对所有女性进行匿名问卷调查,主要包括生殖道感染类型以及构成比情况。(2)研究组于入院次日、对照组于体检当日清晨抽取空腹静脉血3 mL,以3200 r/min离心8 min,离心半径10 cm,取上层血清于-30℃冰箱中保存待检,采用酶联免疫吸附法检测所有女性血清炎症因子,主要包括肿瘤坏死因子- $\alpha$ (tumor necrosis factor  $\alpha$ , TNF- $\alpha$ )、白细胞介素-6(interleukin-6, IL-6)以及白细胞介素-8(interleukin-8, IL-8)(试剂盒购自武汉博士德生物工程有限公司),操作步骤严格遵从试剂盒说明书。(3)采用性生活质量问卷对所有女性的性功能进行评估,主要包括性欲、高潮频数、性满意度、性焦虑、配偶高潮频数、配偶性满意度6个维度,每个维度得分0~4分,得分越高表示性功能越好<sup>[9]</sup>。(4)分别采用患者健康问卷抑郁量表(Health Questionnaire depression scale, PHQ-9)和广泛性焦虑评定量表(Generalized Anxiety Rating Scale, GAD-7)以问卷形式进行焦虑抑郁评估,得分越高表示患者焦虑或抑郁越严重<sup>[10]</sup>。

### 1.3 统计学方法

统计分析采用SPSS23.0软件,年龄、产次、血清炎症因子等计量资料采用( $\bar{x}\pm s$ )表示,行t检验。检验标准设置为 $\alpha=0.05$ 。

## 2 结果

### 2.1 60例生殖道感染患者的感染类型分析

60例生殖道感染患者感染类型主要包括宫颈炎33.33%、非特异性阴道炎26.67%、滴虫性阴道炎13.33%、霉菌性阴道炎10.00%,其余感染类型占比低于10%,见表1。

表1 60例生殖道感染患者的感染类型分析

Table 1 Analysis of the infection type of 60 patients with reproductive tract infection

Types of infection	Number of cases	Proportion
Cervicitis	20	33.33%
Nonspecific vaginitis	16	26.67%
Trichomonal vaginitis	8	13.33%
Colpitis mycotica	6	10.00%
Gonococcal vaginitis	4	6.67%
Condyloma acuminatum	3	5.00%
Toxoplasma infection	2	3.33%
Others	1	1.67%
Total	60	100.00%

2.2 两组女性血清炎症因子水平及心理状态的比较  $P<0.05$ ), 研究组 PHQ-9 评分及 GAD-7 评分均高于对照组(均研究组血清 TNF- $\alpha$ 、IL-6、IL-8 水平均较对照组升高 (均  $P<0.05$ ), 见表 2。

表 2 两组女性血清炎症因子水平及心理状态的比较( $\bar{x} \pm s$ )

Table 2 Comparison of serum inflammatory factors and psychological state between two groups of women( $\bar{x} \pm s$ )

Groups	n	TNF- $\alpha$ (ng/mL)	IL-6(ng/mL)	IL-8(ng/mL)	PHQ-9(scores)	GAD-7(scores)
Study group	60	144.38 $\pm$ 31.85	73.85 $\pm$ 15.73	218.64 $\pm$ 43.28	16.35 $\pm$ 5.88	13.87 $\pm$ 3.73
Control group	60	99.01 $\pm$ 22.25	40.27 $\pm$ 10.52	113.82 $\pm$ 26.08	5.15 $\pm$ 1.76	5.89 $\pm$ 1.39
t	-	9.045	13.745	16.068	14.135	15.529
P	-	0.000	0.000	0.000	0.000	0.000

2.3 两组女性性功能情况对比 配偶性满意度评分均低于对照组, 差异有统计学意义(均  $P<0.05$ ), 见表 3。

表 3 两组女性性功能情况对比( $\bar{x} \pm s$ , 分)

Table 3 Comparison of female sexual function of women between the two groups(scores,  $\bar{x} \pm s$ )

Groups	n	Sexual desire	Climax frequency	Sexual satisfaction	Sexual anxiety	Frequency of spouse orgasm	Sexual satisfaction of spouse
Study group	60	3.08 $\pm$ 0.92	4.38 $\pm$ 1.01	2.71 $\pm$ 1.07	3.66 $\pm$ 1.30	2.68 $\pm$ 1.01	2.95 $\pm$ 1.04
Control group	60	3.84 $\pm$ 0.51	4.92 $\pm$ 0.32	3.87 $\pm$ 0.47	4.18 $\pm$ 0.54	3.82 $\pm$ 0.38	3.97 $\pm$ 0.41
t	-	5.596	3.948	7.688	2.861	8.183	7.068
P	-	0.000	0.000	0.000	0.005	0.000	0.000

### 3 讨论

女性生殖道感染主要是指正常存在于生殖道的微生物以及外界微生物在医疗操作或性接触过程中侵入生殖道导致的感染, 属于临床妇科常见病、多发病<sup>[11,12]</sup>。有研究报道显示, 在正常情况下, 阴道中微生物群可以共存, 且处于动态平衡状态, 而生殖道手术、性生活、抗生素的应用、阴道灌洗以及局部使用药物等因素均会破坏上述动态平衡状态, 进一步导致阴道菌群失调, 从而增加了生殖道感染发生的风险<sup>[13-15]</sup>。另有研究报道显示, 生殖道感染不仅严重影响了女性的生活质量, 还会增加胎儿不良结局的风险<sup>[16,17]</sup>。在人们追求心理健康的社会背景下, 生殖道感染患者的心理问题也已引起临床妇科医生的重视。由此, 本文通过研究生殖道感染对女性的血清炎症因子、性功能和心理状态的影响, 目的在于为临床女性生殖道感染的治疗方案制定提供一定参考。

本文结果发现, 60 例生殖道感染患者主要感染类型包括宫颈炎 33.33%、非特异性阴道炎 26.67%、滴虫性阴道炎 13.33%以及霉菌性阴道炎 10.00%, 这与周一帆等人的研究报道相符<sup>[18]</sup>, 提示了女性生殖道感染以宫颈炎最为多见, 值得临床重点关注。此外, 研究组血清 TNF- $\alpha$ 、IL-6、IL-8 水平均高于对照组, 这提示了女性生殖道感染患者血清炎症因子水平存在明显升高, 其中主要原因在于生殖道感染后, 体内的免疫系统激活, 可促进巨噬细胞、T 细胞、中性粒细胞等释放炎症因子, TNF- $\alpha$ 、IL-6、IL-8 均是临床常见的炎症因子, 国外已有研究证实 TNF- $\alpha$ 、IL-6 及 IL-8 在多种妇科生殖道疾病中显著的升高<sup>[19-21]</sup>, 这与本研究中发现上述因子在生殖道感染患者中异常

升高相吻合。吴宏宇等人报道指出, 妇科泌尿生殖道感染患者具有一定的病原菌特征, 且其血清炎症因子也存在明显的异常<sup>[22]</sup>。另外, 研究组性欲、高潮频数、性满意度、性焦虑、配偶高潮频数、配偶性满意度评分均低于对照组, 差异有统计学意义。这说明了女性生殖道感染会在一定程度上降低患者性功能。分析原因, 笔者认为生殖道感染会导致患者被社会歧视, 加之其他社会因素共同作用使得患者心理出现异常, 进一步引发患者的心理障碍 - 性心理障碍 - 性功能障碍的变化, 从而造成性欲淡漠以及性交疼痛等性功能障碍表现<sup>[23-25]</sup>, 与此同时, 生殖道感染疾病会导致夫妻感情不和, 从而降低了双方性功能、性生活乐趣以及性要求, 并形成恶性循环, 使得患者不愿意和配偶亲近, 并感到对方厌恶自己, 进一步降低了性欲<sup>[26,27]</sup>。本文结果还显示了研究组 PHQ-9 评分及 GAD-7 评分均高于对照组, 这提示了女性生殖道感染会对患者的心理状态造成严重影响, 不利于患者心理健康。究其原因, 我们认为生殖道感染相关疾病存在易复发的特点, 从而促使患者产生焦虑、抑郁等情绪, 且疾病每次复发均会导致患者心理状态改变, 并形成恶性循环<sup>[28,30]</sup>。因此, 在临床工作中我们应重点关注女性生殖道感染患者的心理状态, 可通过予以针对性心理干预等措施, 达到改善患者心理状态的目的, 进一步提高患者生活质量。

综上所述, 生殖道感染会导致女性患者血清炎症因子显著升高, 性功能降低, 心理状态也会发生改变, 临床工作中应注重生殖道感染患者焦虑抑郁情绪的疏导及抗炎治疗。

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