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前列腺炎患者的血清TPSA表达与微波治疗预后的相关性*

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摘要 目的:探讨前列腺炎患者的血清总前列腺特异性抗原(otal Prostate specific antigen,TPSA)表达与微波治疗预后的相关性。**方法:**2018年2月至2019年8月选择在北京市中西医结合医院(本院)诊治的78例前列腺炎患者,根据随机数字表法分为微波组与对照组,各39例,对照组给予盐酸坦索罗辛治疗,微波组在对照组治疗的基础上给予微波治疗,两组都治疗观察4w,记录血清TPSA表达变化情况并进行相关性分析。**结果:**所有患者都完成治疗,治疗过程中无不良反应发生。微波组的总有效率为97.4%,显著高于对照组的84.6%($P<0.05$)。两组治疗后的国际前列腺症状评分(International Prostate Symptom Score,IPSS)低于治疗前,微波组低于对照组,对比差异都有统计学意义($P<0.05$)。两组治疗后血清TPSA值低于治疗前,微波组低于对照组,对比差异都有统计学意义($P<0.05$)。在78例患者中,直线相关分析显示患者预后有效率与微波治疗、IPSS评分、TPSA值、临床分期、病程等显著相关($P<0.05$)。**结论:**微波治疗前列腺炎能促进缓解患者的临床症状,提高治疗效果,抑制血清TPSA的表达,血清TPSA表达与微波治疗预后具有显著相关性。

关键词:微波;前列腺炎;国际前列腺症状评分;总前列腺特异性抗原;相关性

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Correlation of Serum TPSA Expression with Prognosis in Patients with Prostatitis*

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ABSTRACT Objective: To explore the correlation between serum TPSA expression and prognosis of microwave therapy in patients with prostatitis. **Methods:** From February 2018 to August 2019, 78 cases of patients with prostatitis who were treated in Beijing Hospital of Integrated Traditional Chinese and Western Medicine (our hospital) were selected as the research subjects and were divided into microwave group and control group with 39 cases in each groups. The control group was given tamsulosin hydrochloride, the microwave group was given microwave treatment on the basis of the control group. Two groups were treated and observed for 4 weeks. The changes in serum total prostate specific antigen (TPSA) expression were recorded and correlated analysis were performed. **Results:** All patients were completed the treatment and there were no adverse reactions occurred during the treatment. The total effective rates in the microwave group was 97.4 %, which was significantly higher than the control group of 84.6 % ($P<0.05$). After treatment, the International Prostate Symptom Score (IPSS) of the two groups were lower than before treatment, and the microwave group were lower than that of the control group, and compared the difference were statistically significant ($P<0.05$). The serum TPSA value in the two groups after treatment were lower than in the microwave group before treatment, and the comparison were statistically significant ($P<0.05$). In the 78 patients, linear correlation analysis showed that the prognosis effectiveness of patients were significantly related to microwave treatment, IPSS score, TPSA value, clinical stage, and disease duration ($P<0.05$). **Conclusion:** Microwave treatment of prostatitis can promote the relief of clinical symptoms, improve the treatment effect, and inhibit the expression of serum TPSA. The expression of serum TPSA are significantly correlated with the prognosis of microwave treatment.

Key words: Microwave; Prostatitis; International prostate symptom score; Total prostate-specific antigen; Correlation

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前言

前列腺炎是引起男性排尿障碍原因中最为常见的一种良性疾病^[1]。该病的临床上主要表现为下尿路刺激症状、排尿梗阻症状,伴或不伴有性功能障碍、神经精神症状,从而严重影响患者的身心健康^[2,3]。该病的发病机制比较复杂,涉及的病因包括免疫学因素、病原体感染、盆腔静脉性疾病、毗邻器官病变、物理与化学因素刺激等。特别是在该病发生的同时,前列腺组织中的血管以及相关血管生成因子含量也逐渐升高,血管密度增加^[4,5]。药物为前列腺炎的主要治疗方法,盐酸坦索罗辛是一种高选择性的 α 受体阻滞剂,对缓解患者的下尿路症状效果较好,但是持续效应不强^[6,7]。微波可产生局部热效应,使受热分子运动加快,增高生物膜的通透性,加快血液循环,降低肌肉和纤维结缔组织的张力,改善局部微环境^[8,9]。并且其也能增强免疫力,有助于提高局部杀菌药物浓度,增加体内的抗体和补体,促进炎症消散^[10,11]。前列腺特异性抗原(Prostate specific antigen, PSA)是组织激肽释放酶家族成员,包含一条多肽链和一条侧链,具有类胰蛋白酶、丝氨酸蛋白酶、类酯酶的生理活性^[12]。当病变组织侵犯突破这层屏障,血液 PSA 含量就会上升,PSA 含

量与机体病情有一定的正相关性^[13]。总 PSA(total PSA,TPSA)临床正常参考范围为 0~4 ng/mL,可作为前列腺癌筛查与诊断的重要指标,也是穿刺活检的重要依据^[14],但是在前列腺炎中的表达报道还不多见。本文具体探讨了前列腺炎患者的血清 TPSA 表达与微波治疗预后的相关性,现总结报道如下。

1 临床资料

1.1 研究对象

2018 年 2 月至 2019 年 8 月选择在本院诊治的 78 例前列腺炎患者作为研究对象,纳入标准:符合前列腺炎的诊断标准;患者年龄 40~70 岁,具有保守治疗指征;患者在自愿条件下签署了知情同意书;国际前列腺症状评分(IPSS 评分) ≥ 12 分;医院伦理委员会批准了此次研究;病程 ≥ 3 个月。排除标准:急、慢性尿路感染病;临床资料缺乏者;既往接受前列腺炎药物治疗者;合并严重心血管、肝、肾疾病者;膀胱出口梗阻和肛门直肠疾病患者。

根据随机数字表法分为微波组与对照组各 39 例,两组的一般资料对比无差异($P>0.05$),见表 1。

表 1 两组一般资料对比
Table 1 Comparison of two groups of general information

Groups	n	Age (years)	BMI(kg/m ²)	Prostate volume (mL)	Clinical stages (I/II/III)	Course of disease (months)
Microwave group	39	58.22 $\pm$ 3.09	22.23 $\pm$ 1.44	76.22 $\pm$ 6.79	18/12/9	7.18 $\pm$ 0.32
Control group	39	58.11 $\pm$ 3.11	22.89 $\pm$ 1.19	76.03 $\pm$ 7.14	19/11/9	7.23 $\pm$ 0.45

1.2 治疗方法

对照组:给予盐酸坦索罗辛治疗,口服盐酸坦索罗辛缓释胶囊(浙江海力生制药有限公司,0.2 mg/粒)口服治疗,0.2 mg/次,1次/d。

微波组:在对照组治疗的基础上给予微波治疗,采用经直肠热疗仪(天津市中亚医疗仪器科技开发有限公司,ZW-1001F),30 min/d,局部温度 40℃~43℃,一周应用 5 d。两组都治疗观察 4 w。

1.3 观察指标

(1)疗效判断标准:结合《中药新药临床研究指导原则》进行判定,显效:临床症状消失,最大尿流率(Qmax) ≥ 18 mL/s;有效:临床症状好转,Qmax ≥ 18 mL/s;无效:未达到有效标准者。(有效+显效)/总例数 $\times 100\%$ =总有效率。(2)所有患者在治疗前后进行 IPSS 评分,总分为 0~35 分,分值越高,总体症状或者

泌尿症状困扰越严重。(3)在治疗前后抽取患者的空腹静脉血 2~3 mL,低温离心分离上层血清,采用全自动化学发光免疫分析仪检测血清 TPSA 含量。

1.4 统计方法

计量数据与计数数据结果用 SPSS 22.00 软件程序进行分析,表示方法分别为率(%),均数 $\pm$ 标准差等,对比方法为 χ^2 检验、t 检验等,相关性分析采用直线相关分析,检验水准为 $\alpha=0.05$, $P<0.05$ 差异有统计学意义。

2 结果

2.1 治疗效果

所有患者都完成治疗,治疗过程中无不良反应发生。微波组的总有效率为 97.4% (38/39),对照组的总有效率为 84.6% (33/39),对比微波组显著高于对照组的($P<0.05$),见表 2。

表 2 疗效对比(例,%)
Table 2 Comparison of treatment effects (n,%)

Groups	n	Excellence	Effective	Invalid	Total effective rate
Microwave group	39	36	2	1	38(97.4)*
Control group	39	29	4	6	33(84.6)

Note: Compared with the control group, * $P<0.05$.

2.2 IPSS 评分变化对比

治疗前,两组的 IPSS 评分对比差异无统计学意义($P>0.05$);治疗后两组的 IPSS 评分低于治疗前,且微波组治疗后

IPSS 评分低于对照组($P<0.05$),见表 3。

表 3 两组治疗前后 IPSS 评分变化对比(分, $\bar{x} \pm s$)Table 3 Comparison of changes in IPSS score before and after treatment between the two groups (score, $\bar{x} \pm s$)

Groups	n	Pretherapy	Post-treatment
Microwave group	39	21.49 $\pm$ 1.29	14.29 $\pm$ 2.53* [#]
Control group	39	22.88 $\pm$ 2.77	18.49 $\pm$ 2.19*

Note: Compared with the same group pretherapy, * $P < 0.05$; compared with the control group post-treatment, [#] $P < 0.05$.

2.3 血清 TPSA 变化对比

治疗前, 两组的血清 TPSA 值对比差异无统计学意义($P > 0.05$);

治疗后两组血清 TPSA 值低于治疗前, 且微波组低于对照组($P < 0.05$), 见表 4。

表 4 两组治疗前后血清 TPSA 变化对比(ng/mL, $\bar{x} \pm s$)Table 4 Comparison of changes in serum TPSA before and after treatment between two groups (ng / mL, $\bar{x} \pm s$)

Groups	n	Pretherapy	Post-treatment
Microwave group	39	8.44 $\pm$ 0.13	1.98 $\pm$ 0.32* [#]
Control group	39	8.67 $\pm$ 0.22	3.33 $\pm$ 0.18*

2.4 相关性分析

在 78 例中, 直线相关分析显示患者预后有效率与微波治

疗、IPSS 评分、TPSA 值、临床分期、病程等显著相关($P < 0.05$), 见表 5。

表 5 前列腺炎患者的治疗预后与其他指标的相关性(n=78)

Table 5 Correlation between the prognosis of patients with prostatitis and other indicators (n=78)

Index	Microwave therapy	IPSS grades	TPSA values	Clinical stages	course of disease
r	0.677	0.762	0.711	0.593	0.445
P	0.000	0.000	0.000	0.006	0.016

3 讨论

前列腺炎是中老年男性患者的常见病和多发病, 随着人口结构的老龄化, 该病的发病人数越来越多。前列腺炎治疗目的是防止和延缓疾病的进展, 减轻症状, 提高生活质量^[15]。不过由于很多患者因脏器功能老化, 各项生理功能退化, 对于治疗的要求比较高^[16]。坦索罗辛为 α -受体阻滞剂, 能舒张后尿道、前列腺、膀胱颈的平滑肌, 还具有服用方便等优点, 但是部分患者的疗效并不理想^[17, 18]。研究表明机体病灶处施以兴奋或镇定作用, 可改善局部通透性, 消除炎症^[19]。微波治疗可通过特别导管治疗电极与灌注的药物液体形成闭合电路, 改善前列腺的血液循环和输送更多的药物致前列腺; 并且其也使电极导管周围产生高频电磁场, 可把杀菌药物直接推进病灶深层, 增强消灭致病微生物的威力, 也使组织细胞通透性增高, 提高了杀菌药物的局部浓度^[20, 21]。本研究显示所有患者都完成治疗, 治疗过程中无不良反应发生。微波组的总有效率为 97.4%, 显著高于对照组的 84.6%; 两组治疗后的 IPSS 评分低于治疗前, 微波组低于对照组, 禹长杰^[22]的研究与本研究的一致, 发现盐酸坦索罗辛联合微波治疗慢性前列腺炎 / 慢性骨盆疼痛综合征的有效率为 72.55%, 显著高于单纯口服盐酸坦索罗辛组的 50.98%, 表明微波治疗能促进患者缓解临床症状, 提高治疗效果。分析其原因为微波治疗能激活机体的免疫功能, 增强吞噬细胞的功能, 疏通了堵塞的腺管管口, 吞噬致病微生物和活性氧, 改善了患者的疼痛症状和性功能, 使致痛和诱发炎症的化学物质排出加速, 从而达到杀菌消炎的目的^[23, 24]。

前列腺炎的病程较长, 可表现为慢性盆腔疼痛和排尿异

常, 不少患者伴有一定的性功能障碍, 还可引起反复的的尿路感染^[25]。TPSA 的生理作用能降解精浆凝块中 semenogelin I、II 和纤连蛋白, 有助于精液液化、精子释放。TPSA 由前列腺腺泡及导管上皮细胞合成且储存在胞浆小体、溶酶体、内质网中, 通过胞吐的方式分泌入前列腺导管腔内释放入精液^[26]。TPSA 具有前列腺上皮细胞, 前列腺上皮-血管屏障能有效地阻止 TPSA 进入血液循环, 正常生理情况下精液中 TPSA 浓度是血清中的 100 万倍。有研究显示 TPSA 能显著提高前列腺癌的鉴别能力, 可以降低不必要的穿刺活检率, 减少患者的过渡治疗^[27]。前列腺炎可导致 PSA 大量分泌至细胞外间隙, 增加蛋白水解酶的活性以及癌组织中微血管密度, 从而使 TPSA 从细胞间隙大量进入血液循环中。本研究显示两组治疗后血清 TPSA 值低于治疗前, 微波组低于对照组, 目前国内外没有关于微波治疗对血清 TPSA 值的报道, 但是血清 TPSA 水平检测对慢性前列腺炎患者的临床分型诊断, 预后具有一定指导价值。本研究表明微波治疗能抑制 TPSA 的释放。从机制上分析, 微波治疗能前列腺炎的局部病理环境, 消减了活性氧与炎症因子之间的恶性循环, 并且在缓解疼痛症状上具有重要的作用, 从而抑制 TPSA 的表达。

TPSA 的应用显著提高了前列腺炎的检出率, 但其检测的特异性还不明确。当患者出现前列腺癌时, 前列腺腺体上皮细胞的结构被破坏, 可使得 TPSA 大量进入细胞外间隙和血循环, 导致血清 TPSA 表达升高。本研究直线相关分析显示前列腺炎患者的预后有效率与微波治疗、IPSS 评分、TPSA 值、临床分期、病程等显著相关, 表明前列腺炎患者的血清 TPSA 表达能影响微波治疗的预后。罗进阳等学者的研究也发现前列腺增

生与前列腺体积、IPSS 均呈正相关,与最大尿流率呈负相关,与临床分期呈正相关,而与本研究不同的是发现根据年龄、IPSS 及 PSA 分组,前列腺增生在高危组与低危组之间比较差异无统计学意义。本研究结果显示微波治疗前列腺炎能提高治疗效果,抑制血清 TPSA 的表达,血清 TPSA 表达与微波治疗预后具有显著相关性,但是本研究也存在一定的不足,样本数量较少,且相关性分析指标也比较少,将在后续研究中进行分年龄组、低危组、高危组进行深入探讨微波治疗的具体机体和意义。

总之,微波治疗前列腺炎能促进缓解患者的临床症状,提高治疗效果,抑制血清 TPSA 的表达,血清 TPSA 表达与微波治疗预后具有显著相关性。

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