

Journal Literature on Animal Infection Model

Beagle 犬细菌性下尿路炎动物模型的建立

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【摘要】 目的 建立一种简单、稳定、符合临床模式的细菌性下尿路炎 Beagle 犬动物模型。方法 选用 24 个月成年 Beagle 犬 6 条,随机分为模型组(3 条)和对照组(3 条),每次模型组采用标准致病菌大肠杆菌(ATCC25922)2.5 ml,对照组采用相同体积的灭菌生理盐水膀胱灌注。模型成功后进行细菌培养鉴定、药敏实验和病理学观察。结果 与对照组比较,模型组的细菌培养差异有统计学意义($P < 0.05$),细菌鉴定为同型大肠杆菌,对氨苄西林的耐药率最高,对美罗培南最敏感。病理切片中组织形成改变明显,镜下可见大量炎性细胞浸润。结论 大肠杆菌能导致 Beagle 犬下尿路炎,并与人类的下尿路炎具有相似性,多次膀胱灌注是建立动物模型简洁、有效的试验方法,并证实细菌的耐药性是导致下尿路感染的主要病因之一。

【关键词】 细菌性炎症; 下尿路; Beagle 犬; 模型,动物

Establishment and identification of the animal model with bacterial inflammation in the lower urinary tract of the Beagle dogs HE Wei, LI Lu, YU Xiao, LAN Ru-zhu, WANG Shao-gang, LI Jiagui, LIU Ji-hong, YE Zhang-qun. Research Institute of Urology, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan 430030, China

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【Abstract】 **Objective** To establish a clinical animal model of bacterial inflammation in the lower urinary tract and to provide a research platform for the physical treatment of lower urinary tract inflammation. **Methods** Six 24-month-old adult Beagle dogs were randomly divided into model group ($n = 3$) and control group ($n = 3$). By bladder irrigation, the dogs were given the standard pathogenic *E. coli* (ATCC25922) 2.5 mL in the model group and the same dose of saline in the control group every time. Bacteria were cultured and identified cation, subjected to susceptibility testing and observed pathologically after the model was constructed. **Results** Compared with the control group, the bacterial culture in the model group was positive and the bacteria identified was the same type of *E. coli*, the resistance rate of *E. coli* to ampicillin was the highest and they to meropenem was the most sensitive. HE dyeing show that the changes of tissues were significantly and a great number of inflammatory cells infiltrated under microscope. **Conclusion** *E. coli* can cause inflammation in Beagle dogs' lower urinary tract, and the clinical and tissue changes were similarity with the human lower urinary tract inflammation. it is very effective that the multiple bladder irrigation can establish animal model, and the antimicrobial resistance of bacteria is a major cause of lower urinary tract infection.

【Key words】 Bacterial inflammation; Lower urinary tract; The Beagle dog; Model, animal

下尿路炎是泌尿外科的一种常见病,其病因、临床症状和治疗上存在许多难题,特别是药物治疗仍然相当困难。为了探讨物理方法治疗下尿路炎的可行性,我们用 Beagle 犬制作了细菌引发下尿路炎的动物模型,现将结果报道如下。

材料与方 法

1. 实验动物:健康成年 Beagle 犬,戊巴比妥钠 1 ml/kg 静脉麻醉后,消毒外生殖器及尿道外口,插入无菌 F6 尿道测压管(人用)进入膀胱,留取中段尿进行细菌培养,结果为阴性的 Beagle 犬 6 条,

平均犬龄 24 个月,体质量 11 ~ 13 kg。所有实验犬由华中科技大学同济医学院附属同济医院实验动物中心(实验动物设施使用证明号:00023472;动物质量合格证号:00018012)提供并统一管理,饲养于清洁级环境,所有操作经同济医科大学实验动物关怀和利用委员会许可。

2. 动物模型的建立:将 Beagle 犬随机分为模型组(3 条)和对照组(3 条),采用标准致病菌大肠埃希菌(ATCC25922,由本医学院微生物实验室提供),使用前置 37 °C 培养箱内培养 18 h,无菌生理盐水配成 1.5×10^8 CFU/ml 浓度菌液。所有 Beagle 犬给予戊巴比妥钠 1 ml/kg 静脉麻醉后,固定四肢,在无菌条件下将 F6 尿道测压管插入膀胱引流尿液,模型组每次灌注菌液 2.5 ml,对照组灌注等量 0.9% 生理盐水,保留 5 min。实验初 3 d 每天 1 次,以后分别于第 5、7、9 天

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Journal Literature on Animal "One-glass Test"

“一杯法”:一种前列腺按摩液收集方法

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【摘要】目的 建立一种简便、快速、可靠的收集前列腺按摩液(EPS)的新方法。**方法** 35 条 Beagle 犬,随机分为 7 组,每组 5 条。构建尿路感染模型,收集尿液、EPS 和前列腺组织进行细菌培养和白细胞镜检,同时取尿道和前列腺组织进行组织病理和电镜检查及尿道黏膜刺激性评估。**结果** 细菌学检查:EPS 结果表明第 3 组阳性,其余 4 组均阴性;尿液结果第 1~2 组均为阴性,第 3~5 组均为阳性。EPS 白细胞镜检,第 6 组白细胞计数 $[(3.60 \pm 0.55)$ 个/高倍镜视野]与第 7 组 $[(3.33 \pm 0.41)$ 个/高倍镜视野]比较差异无统计学意义($t=0.871, P=0.409$)。组织病理和电镜检查证实上述结果。尿道黏膜刺激性评分结果显示,洁悠神(JUC)对黏膜具有极轻微刺激性。**结论** 经 JUC 尿道膜收集的 EPS 可以排除被尿道污染(假阳性)以及被尿道膜干扰(假阴性)的可能性,“一杯法”具有可行性。

【关键词】 前列腺按摩液; 洁悠神长效抗菌材料; Beagle 犬尿路感染模型; 前列腺炎

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A novel strategy to collect expressed prostatic secretion He Wei, Li Lu, Yuan Hongfang, Chen Zhiqiang, Xu Hua, Lan Ruzhu, Yu Gan, Ye Zhangqun

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【Abstract】Objective To establish a simple, rapid and reliable method for collecting expressed prostatic secretion (EPS). **Methods** Thirty-five Beagle dogs were randomly divided into 7 groups ($n=5$ each). After construction of urinary tract infection animal model, urine, EPS and prostate tissue were collected for bacterial culture and microscopic examination of white blood cells. Besides, urethra and prostate tissue were obtained for histopathological and electron microscopic examination, and evaluation of urethral mucosa irritation. **Results** EPS results showed that bacterial test in the third group was positive, that in the other four groups was negative, Urine results in group 1 and 2 were negative, and those in the group 3-5 were positive. There was not significant ($t=0.871, P=0.409$) difference between the sixth groups $[(3.60 \pm 0.55)/HP]$ and the seventh groups $[(3.33 \pm 0.41)/HP]$. The results above were confirmed by histopathological and electron microscopic examinations. The results also showed that JUS long-acting antibacterial material had a slight irritation to mucous membrane. **Conclusion** The EPS collected by JUC can exclude the possibility of being contaminated by urethra (false positive) and the interference of urethra (false negative), suggesting a time-wise feasible.

【Key words】 Expressed prostatic secretion; JUC long-acting antibacterial material; Beagle urinary tract infection model; Prostatitis

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前列腺按摩液(EPS)检查是诊断前列腺炎的必需项目。近几十年诊疗指南推荐采用 Meares-Stamey 的“四杯法”对前列腺炎进行分类,但这种方法操作繁

琐、费用较高,对临床的指导意义有限^[1],且 EPS 经尿道流出易被尿道中的微生物污染,造成假阳性,影响结果准确性。因此迫切需要一种操作简单避免污染的收