

实验研究

中性粒细胞杀灭阴道毛滴虫作用的研究

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摘要

目的 研究中性粒细胞对阴道毛滴虫的杀灭作用。方法 将滴虫性阴道炎患者的阴道分泌物接种于肝浸汤培养基, 获阴道毛滴虫。取患者静脉血分离血清, 取其1 ml 于56 °C 30 min 获补体失活血清。另取1 ml 患者血清于0 °C 以阴道毛滴虫吸附3次, 获去除抗体血清。用密度梯度离心法及聚合物加速沉降法分离、纯化患者静脉血中性粒细胞。用氮蓝四唑(NBT)和沙黄O(safranin O)染色, 显微镜观察中性粒细胞与阴道毛滴虫相互作用及甲臞(NBT还原产物)颗粒(formazan)沉积。取300个阴道毛滴虫和 3×10^4 个中性粒细胞, 分别在有氧或厌氧、有或无超氧化物歧化酶(SOD)及过氧化氢酶(CAT)、有或无补体等不同条件下, 培养10、20、30、40、50及60 min, 再接种于固态琼脂培养基, 在37 °C 厌氧条件下继续培养5 d。观察计数阴道毛滴虫存活率。结果 显微镜下可见几个中性粒细胞同时围攻杀灭1个阴道毛滴虫。含有中性粒细胞时培养的虫体存活率, 厌氧条件下为85%, 有氧条件为3% ($P < 0.01$)。SOD及CAT可明显降低其杀虫作用, 培养60 min 虫体存活率分别为98%及94%, 而无SOD及CAT时虫体存活率为2% (P 值均 < 0.05)。加入去除抗体血清, 可将虫体全部杀灭。加入补体失活血清则无杀虫作用。结论 中性粒细胞杀灭阴道毛滴虫作用依赖于氧及患者血清中补体的存在。

关键词 [阴道毛滴虫](#) [中性粒细胞](#) [补体](#) [抗体](#)

分类号

Killing Effect of Polymorphonuclear Neutrophils on *Trichomonas vaginalis*

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Abstract

Objective To study the killing effect of polymorphonuclear neutrophils (PMNs) on *Trichomonas vaginalis*. Methods The vaginal secretion from a patient with vaginitis was incubated in the liver infusion liquid medium to get *T. vaginalis*. One ml serum was collected from the patient and heated for 30 min at 56 °C to inactivate complement in serum, and was absorbed three times with the parasites at 0 °C to make the serum free of antibodies. PMNs were separated from the patient's blood and purified with density gradient centrifugation and polymer accelerating sedimentation. NBT and safranin O were used to stain the sample. The interaction between PMNs and the parasites was observed under microscope. 300 trichomonads and 3×10^4 PMNs were incubated for 10, 20, 30, 40, 50, 60 minutes under the conditions of aerobic or anaerobic, with superoxide dismutase (SOD) and catalase (CAT) or without SOD and CAT, and with complement or without complement. They were then inoculated in solid medium for another five days under the anaerobic condition, and surviving organisms were enumerated. Results PMNs were observed to surround and kill a single trichomonad. In the petri-dish containing PMNs, the surviving rate of the parasites in anaerobic condition was 85%, only 3% in aerobic condition ($P < 0.01$). SOD and CAT reduced the killing effect of PMNs, with a surviving rate of 98% and 94% respectively after 60 min incubation. Without SOD and CAT, the surviving rate is only 2% ($P < 0.05$). PMNs in the serum without antibodies killed all the parasites, while the complement-inactivated serum fail to kill them. Conclusion The trichomonocidal activity of PMNs relies on the presence of oxygen and complement in the serum of patient.

Key words [Trichomonas vaginalis](#) [Polymorphonuclear neutrophil](#) [Complement](#) [Antibody](#)

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