

利胆合剂降解大肠杆菌内毒素的电镜观察

天津医学院附属医院外科(天津 300052) 秦明放

河北医学院附属第三医院外科 李乐天

内容提要 采用电镜的方法观察了利胆合剂, 多粘菌素B对 $O_{111}B_4$ 大肠杆菌内毒素的影响。结果表明: 利胆合剂可将内毒素原具有很多分支的长链状结构裂解成短杆状或短片段, 部分发生完全解聚。其形态学改变类似多粘菌素B的作用。结果提示, 利胆合剂体外可使大肠杆菌内毒素发生一定程度的降解。本实验结果或许能为利胆合剂的临床疗效提供一定的理论依据。

关键词 利胆合剂 多粘菌素B 内毒素

中西医结合治疗胆石症、胆系感染已取得显著成果, 利胆药物在治疗中发挥着重要作用。这些药物具有促进胆汁分泌、松弛oddi's括约肌和消炎等功效。但是, 胆道感染时菌血症与内毒素血症往往同时存在, 内毒素血症直接影响着患者的预后。如何在非手术或手术治疗时有效地控制内毒素血症的发生和发展已成为提高疗效的关键^(1,2)。本实验采用电镜的方法观察了具有较强药效的利胆合剂对大肠杆菌内毒素的影响。

材料和方法

一、药物与试剂: (1)利胆合剂: 茵陈9g、大黄6g、去氢胆酸200mg、乌梅20g; (河北医学院三院急腹症研究室制备) 药液浓度 120%。(2) $O_{111}B_4$ 精制大肠杆菌内毒素(LPS); 卫生部北京生物制品研究所提供, 批号851。(3)多粘菌素B(Polymoxin B); 广州白云山制药厂提供, 批号8703062。

二、电镜观察: 将LPS溶于0.1M Tris缓冲液中

(pH7.2), 使其浓度成2mg/ml。取此样品0.5ml, 分别与0.5mlTris缓冲液、多粘菌素B(25 μ g/0.5ml)、120%利胆合剂(4000G离心及过滤处理)在小试管中混匀, 置37 $^{\circ}$ C水浴中孵育60分钟。分别取以上样品0.3ml于小试管中, 各加1滴醋酸双氧铀染色, 静置15分钟后按照Lopes法⁽³⁾制成滴片观察。

结 果

一、LPS加Tris缓冲液: LPS在透射电镜下表现为一种具有很多分支的长链状结构, 这些长链又彼此交错成网状。长链的边缘密集、中央较稀疏(图1)。

二、LPS加多粘菌素B: LPS典型的电镜下长链状结构消失, 代之以散在分布的短杆状、短片段或一部分完全解聚(图2)。

三、LPS加利胆合剂: LPS长链状结构也明显遭到破坏, 大部分丧失了其原有结构, 被裂解成短片段、短杆状(图3)。

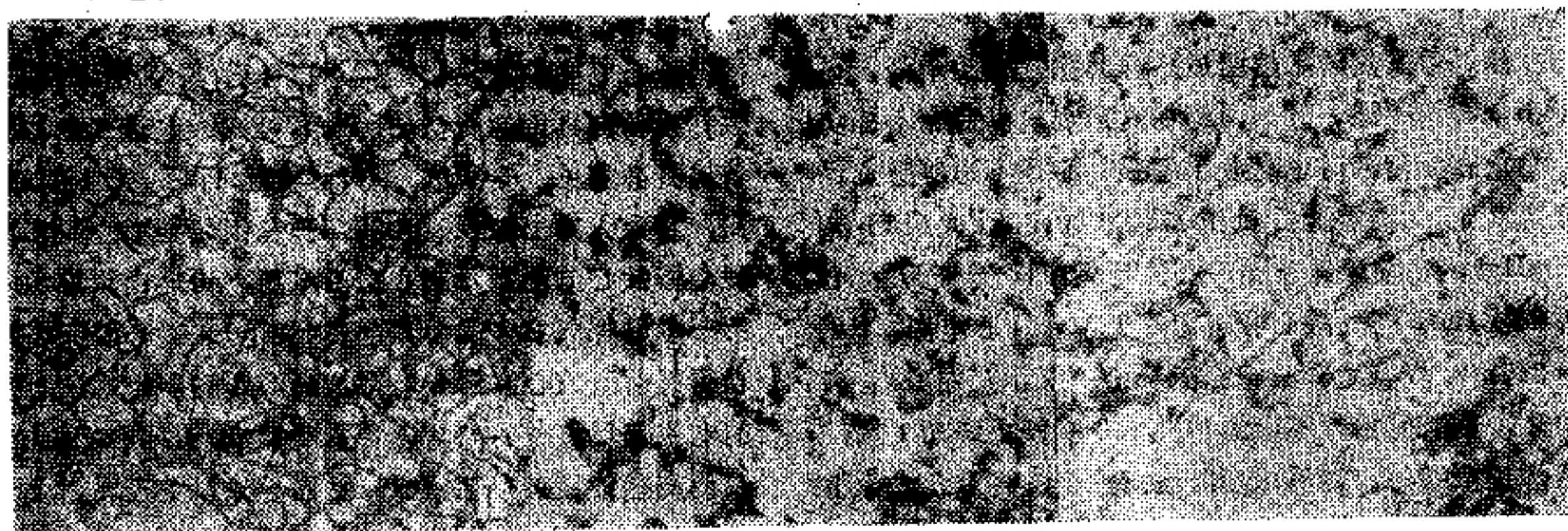


图1 LPS加Tris缓冲液, 内毒素呈分多支长链状结构, 多个长链又彼此交错成网状。800KV $\times$ 20K 图2 LPS加多粘菌素B, 内毒素原结构消失, 呈散在分布的短杆状、短片段, 部分完全解聚。800KV $\times$ 25K 图3 LPS加利胆合剂, 内毒素原长链状结构明显被破坏, 大部分被裂解成短片段或短杆状, 部分区域完全解聚。800KV $\times$ 20K

讨 论

内毒素是革兰氏阴性菌胞壁中的质脂多糖体,位于细胞外膜的最外层,为特殊类脂体构成的巨分子化合物,结构复杂,具有多种生物学活性,对机体除有免疫源性外,尚引起严重而复杂的病理变化,在人类革兰氏阴性菌败血症的病理生理中起着重要作用,是导致感染性休克的常见原因⁽⁴⁾。

利胆合剂与O₁₁₁B₄大肠杆菌内毒素作用的电镜观察结果表明,该药对内毒素具有一定的降解作用。表现在经利胆合剂处理后的内毒素原长链状结构遭到破坏,被裂解成短杆状、短片段或完全解聚,与经多粘菌素B处理后的内毒素所表现出的形态相似。据文献报道,多粘菌素B对大肠杆菌内毒素具有直接破坏作用,虽由于毒性较大,单一使用效果不佳,但那些被裂解的内毒素确已失去原有的生物学活性^(5,6)。

有研究表明⁽⁷⁾,胆汁流量在控制内毒素血症方面是非常重要的。内毒素血症可以由于进入肠道的胆汁量增加而得以改善。茵陈、大黄具有较强的利胆作用,也能调节胆道运动的功能,有利于感染性胆汁的稀释和早期排出。分泌入胆道、肠道的胆汁量增多,

对该部位细菌的抑制作用也就增强,使经肠壁吸收和肝窦逆流入体循环的内毒素量相应减少。因而,利胆合剂在长期的临床应用中取得了较好的疗效。本实验电镜观察结果或许能为上述作用提供一定的理论依据。

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练气功致心电图左心室高电压1例

湖北省黄石市传染病院(湖北 435004) 王嘉会

患者,男,25岁。于1987年12月12日以HBsAg无症状携带者入院。既往无心血管病史。入院后肌肉注射干扰素1.5万u,同时服用肝泰乐、维生素等药物。于1988年元月上旬始学练气功“真气运行法”。取坐式。在练第一步骤“呼气意守心窝部”的第9天,心窝部发热以后发热越来越明显,同时感到心跳增强,逐渐出现心悸不适。开始为练功时出现,以后在不练功意念放在心窝部时也有心跳增强、心悸不适等感觉。于练功13天时检查:血压17.33/10.66kPa(130/80mmHg),心前区无隆起,心浊音界叩诊无扩大,心率74次/min,律齐,心音有力,无杂音。心电图:Rv₅=3.1mv, Sv₁=1.0mv,余无异常,提示:左心室高电压。在其它治疗不变的情况下,嘱停止练功1周,心悸逐渐缓解。以后练功时注意放松,将意念放于下

腹部(丹田)。热感仍较明显,其余感觉良好,无心悸出现。1个月后检查:心率84次/min,余体征同前。心电图:Rv₅=1.9mv, Sv₁=1.2mv,为正常心电图。

讨论:该患者既往无心血管病史,并采取纠正措施后心电图恢复正常,提示电压升高系练气功所致。据研究真气运行法的练功者经穴导电量在坐功后普遍升高(见:李少波.增订真气运行法.第1版.兰州:甘肃人民出版社,1986:37)。因此推测本例出现心悸及心电图显示左心室高电压,可能由于该功法第一步骤呼气意守的心窝部(剑突下)接近心脏,在练功得气时,致心窝部导电量增高,影响和干扰了心脏的电生理现象。另外,患者急于求成,精神不能放松,致使交感神经兴奋性增强,从而导致以上表现。

production of plague forming cells (PFC), the DTH response induced by allogeneic splenocytes. The mixed lymphocyte reaction was much stronger in the drug-receiving group than that in the control group. Further study indicated that KSSF was able to enhance the activities of cytotoxic T lymphocyte and the production of interleukin 2.

Key Words Kang Shuai Sen Fang, cytotoxic T lymphocyte, interleukin 2

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Effect of *Polyporus umbellatus* Polysaccharide on Function of Macrophages in the Peritoneal Cavities of Mice with Liver Lesions

Zhang Ying-hua(张英华), Liu Yu-lan(刘玉兰), Yan Shu-chang(严述常)

Institute of Chinese Materia Medica, China Academy of TCM, Beijing (100070)

The cells in peritoneal cavities of mice were taken out and cultured in vitro. The amount to release H_2O_2 of the macrophages was assayed by fluorimetry. *Polyporus umbellatus* polysaccharide (PUP) could not only increase the number of macrophages and the amount of H_2O_2 release in the peritoneal cavities of normal mice, but also raise the lowered number of macrophages and the ability to release H_2O_2 in the peritoneal cavities of the mice with liver lesions caused by CCl_4 significantly. So PUP could improve the cellular immunity of normal mice and the mice with liver lesions.

Key Words *Polyporus umbellatus* polysaccharide, liver lesions, macrophages of peritoneal cavities

(Original article on page 225)

The Effect of Allitridi on cAMP Level of Artery Wall and Plasma of Hypercholesterolemic Rabbits

Gao Chun-yi(高春义), Xu Ying-jie(徐英杰), et al

Institute of Basic Medicine, Shandong Academy of Medical Science, Jinan (250001)

30 New Zealand rabbits weighing 1.5~2.5 kg were all fed a common diet and subdivided into 3 groups. Group I (the control), group II received cholesterol (0.5 g/kg · d), while group III was added cholesterol (0.5 g/kg · d) and the allitridi (20 mg/kg · d). Blood cholesterol, cAMP and artery cAMP were determined by the usual technique. The results showed that serum cholesterol level was significantly reduced by allitridi during the 15 weeks period of study and the artery wall cAMP level of group I and group III were significantly higher than group II. But there was no significantly difference between group I and III. The difference of cAMP level in plasma was not significant.

Key Words allitridi, artery wall, cyclic adenosine monophosphate, hypercholesterolemia

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Effect of Promoting Biliation Mixture on E. Coli under Electron Microscopy

Qin Ming-fang(秦明放), Li Le-tian(李乐天)*

Dept. of Surgery, First Affiliated Hospital, Tianjin Medical College, Tianjin (300052)

**Dept. of Surgery, Third Affiliated Hospital, Hebei Medical College, Shijiazhuang (050051)*

With electron microscopy this article observed the effect of promoting biliation mixture (PBM) and polymyxin B on E. coli lipopolysaccharide (LPS). The result showed that PBM could breakdown the typical structure of E. coli LPS with only short sections or partially disaggregate it. The morphology changes were similar to the effect of polymyxin B. It would appear that the loss of endotoxicity caused by PBM may be due to the loss of structural integrity of the E. coli LPS. The result may also give some evidence for the clinical effects of PBM theoretically.

Key Words electron microscopy, endotoxin, promoting biliation mixture, polymyxin B

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