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论文

苯噻唑力复霉素作用机理的初步研究

徐克意;王浴生

四川医学院药理学教研室,成都;*上海第二军医大学

摘要:

本文报告苯噻唑力复霉素对细菌生物大分子合成及超微结构的影响。该药可明显抑制^{3}H-尿嘧啶核苷掺入金黄色葡萄球菌209 p和大肠杆菌2281的RNA;对^{2}H-亮氨酸掺入细菌蛋白质仅有轻微抑制;对^{3}H-胸嘧啶核苷掺入细菌DNA无抑制作用。说明其作用机理主要是抑制细菌RNA合成。掺入试验还表明金黄色葡萄球菌对苯噻唑力复霉素有比大肠杆菌更高的敏感性。10倍于MIC浓度的苯噻唑力复霉素能使上述两种细菌超微结构明显改变。胞质失去完整结构,出现空泡,核糖体消失,但胞壁仍保存。

关键词: 苯噻唑力复霉素 金色葡萄球菌209p 大肠杆菌2281 RNA合成 超微结构

A PRIMARY STUDY ON THE MECHANISM OF ACTION OF BENZOTHIAZOLE-RIFAMYCIN

XU Ke-Yi and WANG Yu-Sheng

Abstract:

The effect of benzothiazole-rifamycin on macromolecular synthesis and ultramicroscopic structure of *S.aureus* 209P and *E. coli* 2281 was reported. In both *S. aureus* 209P and *E. coli* 2281, incorporation of ^{3}H-uridine into RNA was strongly inhibited by benzothiazole-rifamycin. Incorporation of ^{3}H-leucine was inhibited slightly, but ^{3}H-thymidine incorporation was not inhibited. From these results, it was inferred that benzothiazole-rifamycin primarily inhibited RNA synthesis. A weak inhibition of bacterial protein synthesis by benzothiazole-rifamycin may be accounted for by secondary effects as a consequence of the inhibition of RNA synthesis, but bacterial DNA synthesis was not inhibitied by benzothiazolerifamycin. Cultures of *S. aureus* were exposed to 0.005, 0.05 and 0.5 μg/ml of benzothiazole-rifamycin, the inhibition of ^{3}H-uridine incorporation was 6.78%, 38.14% and 92o24% in 40 minutes. Cultures of E. coli were exposed to 50,100 and 200 μg/ml of benzothiazole-rifamycin, the inhibition of ^{3}H-uridine incorporation was 12.62%, 32.04% and 45.36%.Both *S. aureus* 209P and *E. coli* 2281 were treated with benzothiazole-Rifamycin. Marked change of ultramicroscopic structure was noted in the cytoplasm which lost compact structure and vacuole appeared, while ribosomes were lost. But the cell wall was preserved.

Keywords: *S.aureus* 209P *E. coli* 2281 Macromolecular synthesis Ultramicroscopic structure Benzothiazole-rifamycin

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