

Antibiotic resistance pattern and visual outcome in experimentally-induced Staphylococcus epidermidis endophthalmitis in a rabbit model.

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Abstract:

OBJECTIVE: To study whether the clinical outcome of Staphylococcus epidermidis-induced endophthalmitis in rabbits is related to the antibiotic resistance pattern of the infecting strain. **DESIGN:** Experimental animal study. **PARTICIPANTS:** The right eyes of 36 New Zealand white albino rabbits were inoculated with strains of S. epidermidis that displayed various patterns of antibiotic resistance. **METHODS:** There were 12 rabbits in each of three study groups: fully antibiotic susceptible (FS), partially antibiotic resistant (PR), and multiresistant (MR). Five days after inoculation, the eyes were enucleated and prepared for histologic studies. **MAIN OUTCOME MEASURES:** Comparisons among the three groups were made based on electroretinographic (ERG) findings, histologic evaluation by a masked observer, and clinical examination. **RESULTS:** Electroretinographic findings on all rabbits were made by an unmasked observer. At 30 hours after inoculation, the ERG was diminished to 65% of normal for group FS, compared with a flat ERG waveform for groups PR ($P < 0.05$) and MR ($P < 0.05$). The ERG waveform was flat for all three groups at 72 hours after inoculation. Histologic evaluation by use of a histologic score revealed that the degree of inflammation and destruction of the retina was less for group FS ($n = 10$) compared with groups PR ($n = 8$) and MR ($n = 8$). Clinical examination revealed that there was a trend of less ocular inflammation for group FS compared with groups PR and MR. **CONCLUSIONS:** In a rabbit model of S. epidermidis-induced endophthalmitis, antibiotic-susceptible strains caused less inflammation and destruction of the infected retina than did antibiotic-resistant strains.