

Intravenous treatment of experimental Staphylococcus aureus endophthalmitis: imipenem versus the combination of ceftazidime and amikacin.

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Abstract

BACKGROUND: To compare the efficacy of intravenous (IV) imipenem (IPM) and a combination of IV ceftazidime (CAZ) and amikacin (AN) in the treatment of Staphylococcus aureus endophthalmitis in a rabbit model. **METHODS:** Right eyes of 60 albino rabbits were injected with 1000 colony-forming units of S. aureus intravitreally. After 24 h, treatment with either IV IPM (37.5 mg/kg) every 8 h (n=18) or IV CAZ (50 mg/kg) and AN (10 mg/kg) every 8 hours (n=18) was begun and continued until the animals were killed at the indicated timepoints; 24 control animals received no treatment. The concentration of bacteria in the vitreous from six animals per group was determined microbiologically on days 2, 3, and 5 after infection, and histologic examination was performed on all eyes. **RESULTS:** The number of eyes with positive cultures on day 5 was lower in the group that received IV IPM (2/6) compared with the IV CAZ/AN group (4/6) and the control group (6/6). For the culture-positive eyes, the bacterial concentrations were significantly lower for the IV IPM group compared with the IV CAZ/AN group on days 2 and 5 ($P<0.05$ and $P<0.0065$, respectively), but not on day 3 ($P <0.8$). Bacterial counts in both treatment groups were significantly lower than in the control group ($P<0.005$). Eyes in all groups, however, showed severe intraocular inflammation. **CONCLUSIONS:** IV IPM is more effective than is IV CAZ/AN in reducing the number of bacteria in an animal model of S.aureus endophthalmitis.