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PIC QUESTION OF THE WEEK: 12/31/07

Q: What drugs are usually recommended for the treatment of fungal endophthalmitis?

A: Many ophthalmic infections are superficial; however, some are deep seated and can result in loss of vision or even the eye itself. Endophthalmitis is an inflammatory condition affecting most tissues of the eye including the aqueous or vitreous humor. Infection is the typical cause and may be associated with bacteria, fungi, or other organisms. *Exogenous* endophthalmitis refers to an external source of infection that contaminates the eye during cataract and other types of intraocular surgery, trauma, etc. *Endogenous* endophthalmitis results from hematogenous spread of organisms from systemic circulation into tissues of the eye. This form of endophthalmitis may develop in patients who are immunosuppressed or suffer from conditions such as diabetes, renal failure, malignancy, alcohol and drug abuse, etc. It occurs much less frequently than the exogenous form of disease. *Candida albicans* is the most common cause of fungal endophthalmitis; however, infection has also been reported with *acremonium*, *aspergillus*, *blastomyces*, *coccidioides*, *cryptococcus*, and a small number of other fungi. Flucytosine and ketoconazole are older antifungal drugs that poorly penetrate the eye and have limited activity against *Candida*. Amphotericin B had been the agent of choice for fungal endophthalmitis prior to the availability of the azole antifungal compounds. Fluconazole has generally replaced amphotericin B as the drug of choice for *systemic* treatment of fungal endophthalmitis. It has a broad spectrum of activity and can be administered by mouth or intravenously. Oral dosage is generally 800 mg daily for approximately eight weeks. Fluconazole is usually well tolerated and its oral and intravenous dosage forms allow for easy administration. Many authors continue to recommend the use of a combination of oral fluconazole and a single injection of amphotericin B into the vitreous body (5-10 mcg/0.1 ml). Not all fungal organisms are susceptible to fluconazole. In cases of resistance, the second generation azole derivative voriconazole may also be effective. The drug has been administered by intra-vitreous injection (50-100 mcg/0.1 ml) and as an ophthalmic solution (1%). In both cases, the solutions were prepared from the commercial intravenous formulation. Voriconazole has also been used systemically in fungal endophthalmitis in oral and intravenous doses of 200 mg twice daily. The duration of oral therapy has usually been extended for several weeks. Caspofungin (50 mg daily intravenously) has also been used for treating fungal endophthalmitis; however, data supporting its efficacy is limited. The treatment of exogenous and endogenous fungal endophthalmitis appears to be similar.

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