

PREVENTING ENDOPHTHALMITIS

ESCRS Endophthalmitis Study chairman responds to study's critics

by Roibeard O'hEineachain in Budapest

Intracameral cefuroxime still remains the prophylaxis of choice for the prevention of endophthalmitis after cataract surgery, since unlike some suggested alternatives, its use is supported by robust data, said Peter Barry FRCS, St Vincent's University Hospital and Royal Victoria Eye and Ear Hospital, Dublin, Ireland.

"The ESCRS Endophthalmitis Study is a gold standard study with Class 1 data which unequivocally demonstrated that intracameral cefuroxime is effective in preventing postoperative endophthalmitis after cataract surgery," Dr Barry, chairman of the ESCRS Endophthalmitis Study Group, told attendees at the 14th ESCRS Winter Meeting.

Reviewing the findings of the ESCRS Endophthalmitis Study, Dr Barry noted that, among 1600 cataract patients in the randomised control trial, intracameral cefuroxime at the end of surgery reduced presumed and proven endophthalmitis five-fold, from 0.35 per cent to 0.05 per cent. In addition it eliminated streptococcal endophthalmitis, eliminated blindness from endophthalmitis and induced minimal toxic anterior segment syndrome (TASS), he said.

Dr Barry noted that, overall, there were 11 staphylococcal infections, eight in the control groups and in the intracameral cefuroxime groups. The patients' final visual acuity ranged from 20/20 to 20/80 and no cases were legally blind, defined as visual acuity of 20/200 or less, he said. By comparison, among eight cases of streptococcal infection, all in the control group, final visual acuity ranged from 20/20 to no light perception and five eyes were legally blind, he pointed out.

"I would suggest that the cefuroxime not only reduces your endophthalmitis risk by a factor of five but seems to exert a particular degree of protection against the organism we fear most, the streptococcus," he added.

Answering the critics Critics of intracameral cefuroxime as an endophthalmitis prophylaxis will sometimes

point out that cefuroxime is a very old antibiotic that is not effective against such pathogens as MRSA, enterococcus such as *S Faecalis* and *Pseudomonas*, Dr Barry noted. They may argue furthermore that it is not commercially available in a liquid preparation suitable for intracameral injection, and it therefore could, through the use of "Kitchen Pharmacy" increase the incidence of TASS, he said.

Dr Barry said that his response to such arguments is that cefuroxime works. Its efficacy is proven, not only in the 8,000 patients in the ESCRS study who received it but also in 425,000 patients in Sweden, where its use has been routine for some years now.

Moreover, as regards difficulties arising from having to prepare the antibiotic in the operating room, Dr Barry noted that there was only minimal incidence of TASS in the 8,000 procedures using the intracameral antibiotic in the ESCRS Endophthalmitis Study.

Some have expressed concern about anaphylactic reactions to cefuroxime in patients who are allergic to penicillin, Dr Barry said. However, cefuroxime does not have a close enough affinity to penicillin to cause allergic reactions in patients with penicillin allergy, he noted. Therefore, although it is unsafe to use some of the other cephalosporins in patients allergic to penicillin, cefuroxime itself does not appear to pose much of a risk, he said.

"I would argue that cephalosporins can be prescribed to people who are allergic to penicillin so long as you are using cefuroxime it is the molecular structure of the side-chain of the individual cephalosporin that runs the risk," Dr Barry added.

There has been one reported case of anaphylaxis with intracameral cefuroxime (*Villada et al, JCRS 2005; 31:620-621*). Fortunately the patient quickly recovered, following the prompt administration of steroids antihistamines and ephedrine. Dr Barry pointed out that even with this one reported case, the incidence of the complication must be considerably lower than the incidence of endophthalmitis

among patients who do not receive intracameral antibiotics.

"I believe if you are going to withhold cefuroxime because of your anxiety of a vague history of a penicillin allergy you must remember that the Swedish rate of endophthalmitis among patients who do not receive cefuroxime is seven times higher than among those who do," he said.

Another criticism of the ESCRS Endophthalmitis Study has been that the rate of the complication among patients not receiving the intracameral antibiotic was "extraordinarily high" (*Editorial, Ophthalmology 2007; 114:831-20*) at 0.35 per cent. However, in Sweden – a country that has in many ways pioneered quality control in cataract surgery – the rate of endophthalmitis is almost exactly the same among patients not receiving the antibiotic as it was in the Endophthalmitis Study.

Regarding the alternatives to intracameral cefuroxime, topical fourth-generation fluoroquinolones has many proponents but the evidence supporting its use is quite small compared to that for cefuroxime.

Another alternative is intracameral moxifloxacin; however there is emerging resistance to the agent and its safe dose is not known. It is also not effective against MRSA. Moreover moxifloxacin has entered the food chain through its use in chicken farms in the US, which will probably render it useless as a prophylaxis against infection in the years to come.

"If we are accused of kitchen pharmacy using cefuroxime and making it up ourselves, then I would suggest that taking a dropped bottle of commercially available moxifloxacin is worse. It can really only be called toilet pharmacy," he added.

Dr Barry concluded his presentation with an appeal to industry for a single unit dose of FDA-approved cefuroxime for individual use in cataract surgery.



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Peter Barry FRCS

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