

# Awareness of antibiotic resistance growing among European ophthalmologists, but old habits hard to eradicate

In the absence of official guidelines and recommendations, many physicians continue to use antibiotics unnecessarily.

Ocular Surgery News Europe Edition, November 2015

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The WHO has launched World Antibiotic Awareness Week, taking place Nov. 16 to 22. The aim of this new initiative is to increase awareness of the emerging global problem of antibiotic resistance and "to encourage best practices among the general public, health workers and policy makers," the WHO said in a press release. World Antibiotic Awareness Week is part of a global action plan endorsed by the World Health Assembly in May, with the motto "Antibiotics: Handle with Care."

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In 1948, 38% of *Staphylococcus aureus* strains in one London hospital were found to be penicillin-resistant. Currently, more than 90% of strains in the U.K. and 100% in the U.S. are resistant to penicillin, while in some communities, more than 50% of strains are resistant to methicillin. In ophthalmology, antibiotic resistance to fluoroquinolones as well as to methicillin and oxacillin has steadily increased.

"Resistance to fourth-generation fluoroquinolones in the ocular surface flora has gone up from 2% in 2002 to 37% in 2010. Similarly, fluoroquinolone resistance among coagulase-negative *Staphylococcus* isolates causing endophthalmitis increased from 3.4% in 1994 to 34% 10 years later and reached 60% in 2011, the era of intravitreal injections," Grzybowski said.

## Unproven benefits, detrimental consequences



Andrzej Grzybowski

In a review of the literature between 2008 and 2014, Grzybowski showed that there is no evidence of a protective effect of preoperative topical antibiotics against endophthalmitis. The ESCRS guidelines for the prevention of endophthalmitis also state that not only do topical antibiotics have no clear benefits, but that bacterial resistance may be induced, while complete bacterial eradication on the ocular surface is not achieved.

"Cataract surgery is the most common surgery worldwide, millions of cataract surgery operations are performed, and we use antibiotics in these million cases without a true benefit," Grzybowski said.

In some European countries, namely Sweden, Denmark and France, there are national recommendations against the use of topical antibiotics before cataract surgery. Sweden stopped using them before and after cataract surgery more than 10 years ago while introducing the use of intracameral cefuroxime, and it has had a low endophthalmitis rate since then.

"This is a very practical argument. And yet intracameral antibiotic prophylaxis is not popular in many parts of the world such as USA, Canada and Asian countries, where topical is still the standard," Grzybowski said.

The debate is still going strong in Europe, and many individual ophthalmologists stopped using topical antibiotics even in absence of national recommendations.

"In Poland, national recommendations include intracameral antibiotics and state that there is no clear evidence in favor of topical preoperative use. The choice is left to the individual surgeon. In Germany and Austria, surgeons are gradually abandoning the use of preoperative drops, and there is discussion on whether they should be used after surgery," Grzybowski said.

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As far as intravitreal injections are concerned, there is evidence that topical antibiotics have no benefits in terms of preventing infection. In the U.S., the use of topical antibiotics has been abandoned by 80% of ophthalmologists, while in Europe, although precise data are not available, it can be speculated that about 30% to 40% of ophthalmologist do not use them.

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"Intravitreal injections are performed in individual patients six to seven times in a year. Repeated administration of antibiotics, before and after the procedure, leads to significant changes in the conjunctival flora and to increasing antibiotic resistance, as shown by several studies. Once the alarm has spread, we have started changing our practice patterns," Grzybowski said.

### Support of official practice standards

Although several awareness campaigns on antibiotic resistance have been

launched by the WHO and other groups, none of them focus on ophthalmology, Grzybowski said.

"We discuss this issue a lot now in congresses, and slowly this is influencing our practice, but it is hard to eradicate the mentality that antibiotics can only be good. In addition, there are concerns about responsibilities and legal issues, and many prescribe antibiotics 'just to be on the safe side,'" he said.

Recommendations from national and international societies would protect ophthalmologists from the allegation of substandard performance when antibiotics are not used.

"We need the support of official practice standards and national guidelines.

Otherwise, we'll continue using the antibiotics to protect ourselves rather than the patient," Grzybowski said.

Handling antibiotics with care also means being aware of a few other important rules, he said. First, there are agents such as vancomycin that should never be used for prophylaxis to preserve their potential to treat endophthalmitis, as recommended by the ESCRS guidelines. Second, antibiotics should be used for a short time, a maximum of 7 days, at a high concentration. Third, antibiotics when combined with steroid should not be tapered. Fourth, patients should be made aware of the dangers of poor compliance.

In his Nobel Prize lecture, Alexander Fleming said: "It is not difficult to make microbes resistant to penicillin in the laboratory by exposing them to concentrations not sufficient to kill them. ... There is the danger that the ignorant man may easily underdose himself and by exposing his microbes to non-lethal quantities of the drug make them resistant."

A 2014 WHO global report on antibiotic resistance warned that "a post-antibiotic era — in which common infections and minor injuries can kill — far from being an apocalyptic fantasy, is instead a very real possibility for the 21st century."

"We need to spread awareness and take effective and prompt measures to avoid this happening," Grzybowski said. — by *Michela Cimberle*

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