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Prophylactic antibiotic treatment for the prevention of endophthalmitis after open globe injury

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Background: Most post-traumatic acute infectious endophthalmitis occurs within a week of open globe trauma, necessitating early antibiotic prophylaxis. There are few randomised studies that demonstrate the benefits of prophylactic antibiotics. This randomised controlled non-inferiority trial was aimed at determining the incidence of post-traumatic endophthalmitis using established intravenous/oral prophylaxis and comparing this to the incidence using oral antibiotics only.

Methods: All adult patients admitted with open globe injury were included. Those with proven endophthalmitis, those with high-risk features, those who underwent primary evisceration and those allergic to the trial antibiotics were excluded. Patients were randomised to receive either intravenous cefazolin and oral ciprofloxacin or oral ciprofloxacin and oral cefuroxime for three days from admission. Acute endophthalmitis was the primary outcome measure. Patients completed the study if they were followed up for 6 weeks post-injury.

Results: Three hundred patients were enrolled, with 150 in each arm. There were 99 exclusions. Seven patients developed endophthalmitis despite prophylaxis - 2.0% (3 cases) in the standard arm and 2.7% (4 cases) in the oral arm - this difference was not statistically significant (p=0.703).

Conclusion: The incidence of endophthalmitis with prophylaxis was 2-3%. Patients who suffer open globe injury should be treated for endophthalmitis if already infected; be eviscerated if warranted by severe injuries; and receive intravitreal injections of prophylactic antibiotics if risk factors for infection are present. The remainder may receive either intravenous cefazolin and oral ciprofloxacin, or oral cefuroxime and oral ciprofloxacin – the latter has the advantage of shortening patients hospital stays and reducing costs. Non-inferiority study design limitations should be considered, however.

Recent Publications

1. Du Toit N, Mustak S, Cook C (2017) Randomised controlled trial of prophylactic antibiotic treatment for the prevention of endophthalmitis after open globe injury at Groote Schuur Hospital. Br J Ophthalmol. 101(7):862-867. Doi:10.1136/bjophthalmol-2016-309736.
2. Steffen J, Du Toit N, Rice J C, Aboobaker S (2016) Axial length elongation in adults with long-standing unilateral traumatic cataract. Afr. Vision Eye Health. 75(1):a334. Doi.org/10.4102/ aveh.v75i1.334.
3. Heydenrych L, Du Toit N, Le Feuvre D (2017) A traumatic carotid cavernous fistula associated with an enlarged superior orbital fissure and open angle glaucoma. JAMA Ophthalmology. January 2016; Volume 1: 103.
4. Du Toit N, Mustak H (2015) Cook C Visual outcomes in patients with open globe injuries compared to predicted outcomes using the Ocular Trauma Scoring (OTS) system. Int. J. Ophthal. 8(6):1229-1233.
5. Du Toit N, Mustak H, Levetan C, Cook C (2013) Visual outcomes as a result of time delays from trauma to surgery in cases of open globe injury at Groote Schuur Hospital. JSM Ophthalmology. 1(2):1012.

Biography

Du Toit N has his expertise in ocular trauma having published studies in the field and having completed his PhD on Open Globe Injuries. The large number of assault cases presenting with eye injuries in Cape Town, South Africa lent itself to doing research in this field. Studies with interesting findings, which are relevant to practice in eye care generally, have consequently been published.

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