

## ABSTRACT

*Purpose:* To evaluate the difference of aqueous and vitreous in colony forming units (CFU/ml) between intravitreal moxifloxacin and moxifloxacin-dexamethasone combination in an experimental rabbit model of *Staphylococcus aureus* endophthalmitis.

*Methods:* The right eyes of 18 rabbits weighing 2 to 4 kg were used.  $10^2$  colony forming units of *S. aureus* in 0.1 ml saline solution were inoculated into the vitreous cavity. The eyes were randomly assigned into three groups equally. Twenty four hours after the inoculation of *S. aureus*, claimed with positive clinical appearance and gram staining from vitreous aspiration, group 1 received 0.1ml Balanced Salt Solution (BSS) as control, group 2 received 60  $\mu$ g moxifloxacin, group 3 received 60  $\mu$ g moxifloxacin plus 400  $\mu$ g dexamethasone. The eyes were enucleated for aqueous and vitreous aspirates for microbiological analysis. Statistical analysis was performed using Oneway Anova, Kruskal-Wallis and Mann-Whitney *U* tests.

*Results:* In all treatment groups, mean number of aqueous were significantly lower compared with control group  $p = 0.000$  ( $p < 0.05$ ). In all treatment groups, median vitreous score were significantly lower compared with control group  $p = 0.003$  ( $p < 0.05$ ). The control in aqueous group had a statistically difference number of CFU compared with moxifloxacin  $p = 0.000$  ( $p < 0.05$ ) and moxifloxacin plus dexamethasone  $p = 0.000$  ( $p < 0.05$ ). The moxifloxacin in aqueous group had significant difference of CFU compared with moxifloxacin dexamethasone combination  $p = 0.028$  ( $p < 0.05$ ). The control in vitreous group had significant difference of CFU compared with moxifloxacin  $p = 0.004$  ( $p < 0.05$ ) and in moxifloxacin plus dexamethasone  $p = 0.006$  ( $p < 0.05$ ). The moxifloxacin in vitreous group had no significant difference of CFU compared with moxifloxacin dexamethasone combination  $p = 0.201$  ( $p < 0.05$ ).

*Conclusions:* Bacteriological outcomes after treatment using moxifloxacin and moxifloxacin-dexamethasone combination were comparable. There were lower number of CFU in aqueous and vitreous in moxifloxacin compared with moxifloxacin dexamethasone combination. Intravitreal moxifloxacin alone may be an option in the treatment of *S. aureus* endophthalmitis.

Keywords: Endophthalmitis, *Staphylococcus aureus*, moxifloxacin, dexamethasone