Topical antibiotics for prevention of postoperative endophthalmitis

Review information

Authors

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What's new

Date / Event	Description

History

Date / Event	Description

Abstract

Background

Objectives

Search methods

Selection criteria

Data collection and analysis

Results

Authors' conclusions

Plain language summary

[Plain language title]

[Summary text]

Background

Description of the condition

Description of the intervention

How the intervention might work

Why it is important to do this review

Objectives

Methods

Criteria for considering studies for this review

Types of studies

7) Post-operative use of antibiotic eye drops

P: patients with age-related cataract undergoing cataract surgery

I: post-operative use of antibiotic eye drops versus no use of antibiotic eye drops

C: Endophthalmitis rates

O: clinical endophthalmitis (culture proven + non-proven) (alternative: colony forming units/bacterial growth)

Types of participants

Types of interventions

Types of outcome measures

Primary outcomes

Secondary outcomes

Search methods for identification of studies

Electronic searches

Searching other resources

Data collection and analysis

Selection of studies

Data extraction and management

Assessment of risk of bias in included studies

Measures of treatment effect

Unit of analysis issues

Dealing with missing data

Assessment of heterogeneity

Assessment of reporting biases

Data synthesis

Subgroup analysis and investigation of heterogeneity

Sensitivity analysis

Results

Description of studies

Results of the search

Included studies

Excluded studies

Risk of bias in included studies

Allocation (selection bias)

Blinding (performance bias and detection bias)

Incomplete outcome data (attrition bias)

Selective reporting (reporting bias)

Other potential sources of bias

Effects of interventions

Discussion

Summary of main results

Overall completeness and applicability of evidence

Quality of the evidence

Potential biases in the review process

Agreements and disagreements with other studies or reviews

Authors' conclusions

Implications for practice

Implications for research

For He 2009 har jeg brugt T0 og T1, thioglycolat broth

For Ta 2002 har jeg brugt T0 og T2, thioglycolat broth

For Moss 2009 har jeg brugt C0 og T1, septichek broth

Inoue 2008 har jeg aflæst fra Figur 1, before LVFX og after LVFX

Coskun 2011, jeg har aflæst fra table 2 and table 3

Vasavada 2008: ekskluderes da de ikke rapporterer antallet af positive prøver men antallet af colony forming units, hvilket ikke kan sammenlignes med de øvrige studier

Halachimi-Eyal: ekskluderes da de ikke rapporterer antallet af positive prøver efter topikal antibiotika alene, men kun efter antibiotika + povidon-iodid

Acknowledgements

Contributions of authors

Declarations of interest

Differences between protocol and review

Published notes

Characteristics of studies

Characteristics of included studies

Coskun 2007

Methods	RCT Compares number of positive conjunctical samples in patients randomized to povidone-iodine, ciprofloxacin or ofloxacin Country and clinic: Department of Ophthalmology, Anamur Medical Hospital, Turkey
Participants	Patients with age-related cataract undergoing phacoemulsification Demographics of Group 1: Age (mean (SD)) 58.2 yrs (5.3), 47.2% women Demographics of Group 2: Age (mean (SD)) 60.5 yrs (4.4), 50.0% women Demographics of Group 3: Age (mean (SD)) 59.6 yrs (6.2), 49.1% women
Interventions	Group 1: 5% povidone-iodine conjunctival application on day of surgery Group 2: 1 drop 0.3% ciprofloxacin 1 day before + 4 drops every 15 minutes on surgical day Group 3: 1 drop 0.3% ofloxacin 1 day before + 4 drops every 15 minutes on surgical day. Sample time points: T0: the day before surgery prior to antibiotic treatment. T1: 15 min after last application
Outcomes	Number of positive samples: Group 1: T0: 53/53, T1: 12/53 Group 2: T0: 54/54, T1: 4/54 Group 3: T0: 56/57, T1: 19/57
Notes	No conflict of interests reported In the metaanalysis the effect of topical antibiotic versus povidone-iodine was evaluated as Group 1 versus Group 2 + Group 3

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"This prospective, randomized, comparative study..." No further information about randomization procedure provided
Allocation concealment (selection bias)	Unclear risk	Not reported

Blinding of participants and personnel (performance bias)	Unclear risk	Not reported
Blinding of outcome assessment (detection bias)	Low risk	"The microbiologist did not know whether a given specimen was taken before or after the topical application and whether it was obtained from the eye that received povidone-iodine, ciprofloxacin, or ofloxacin"
Incomplete outcome data (attrition bias)	Low risk	Number of drop-outs or patients/samples lost to follow-up not reported but not likely to be high since the dosing started the day before surgery and the post-treatment samples were taken at the day of surgery
Selective reporting (reporting bias)	Low risk	Important outcome reported
Other bias	Low risk	Not likely in this study

ESCRS Study 2007

Methods	RCT Compares the rate of endophthalmitis in patients randomized to perioperative topical levofloxacin versus placebo Country and clinics: multicenter RCT across Europe (Austria, Belgium, Germany, Italy, Poland, Portugal, Spain, Turkey and UK)
Participants	Patients undergoing cataract surgery Demographis of study population: 58% women, median age of women 75 yrs, median age of men 73 yrs
Interventions	Group 1: perioperative levofloxacin 0.5% (1 drop 60 + 30 min prior to surgery and 3 drops in 5 min intervals immediately after surgery) Group 2: placebo eye drops in same dosing regime as topical levofloxacin All patients received preoperative povidone-iodine conjunctival wash and postoperative levofloxacin eyes drops 4 times daily for 6 days.
Outcomes	Endophthalmitis rate (culture proven + non-proven) was 12/8101 in Group 1 and 17/8110 in Group 2
Notes	The study was funded by ESCRS and Santen GmbH who provided levofloxacin and placebo eye drops as well as an unrestricted educational grant

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Patients randomization was performed by the database"
Allocation concealment (selection bias)	Low risk	Not likely
Blinding of participants and personnel (performance bias)	Low risk	"Before surgery, each patient was allocated a drop bottle containin levofloxacin 0.5% or its antibiotic-free vehicle solution. A unique sequential subject ID identified each bottle"

Blinding of outcome assessment (detection bias)	Low risk	"The study chairman, coordinator, and all clinical partners remained masked while the study continued"
Incomplete outcome data (attrition bias)	Low risk	"There were 16603 patients recruited to the study, of which 2% were lost to follow-up... A further 68 patients were omitted because they did not have the planned surgery or withdrew their consent"
Selective reporting (reporting bias)	Low risk	Important outcomes reported
Other bias	Unclear risk	All patients (both those randomized to preoperative levofloxacin and those randomized to no preoperative antibiotic) received postoperative levofloxacin 0.5% (Oftaquix) 4 times daily for 6 days starting the day of surgery risk of bias primært fra JCRS 2006 artiklen

He 2009

Methods	RCT Compares 1 day and 3 day application of topical 0.5% moxifloxacin on the conjunctival flora Country and clinic: Stanford Department of Ophthalmology, Stanford University, California and Department of Ophthalmology, Ludwig-Maximilians-University, Munich, Germany
Participants	Patients scheduled for ocular surgery Demographics of study population: Age 71.2 yrs (range 24-93), 49.2% women
Interventions	Group 1: topical 0.5% moxifloxacin four times daily for 1 day, n=63 Group 2: topical 0.5% moxifloxacin four times daily for 3 days, n=57 All patients received three additional drops of topical moxifloxacin 5 minutes apart 1 hour before surgery Sample time points: baseline (T0, before antibiotic treatment) and upon arrival for surgery (T1, after antibiotic treatment but before povidone-iodine)
Outcomes	Rate of positive thioglycolate cultures: Group 1: T0: 50/63 positive samples T1: 22/63 positive samples Group 2: T0: 47/57 positive samples, T1: 20/57 positive samples
Notes	Funding not reported. One of the authors disclosed interests in Alcon, Santen and Allergan and one reported funding by Hannelore-Georg Zimmermann Foundation

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"A total of 144 patients were randomized into two groups using random numbers generated by Microsoft Excel Software"
Allocation concealment (selection bias)	Low risk	"All patients scheduled for ocular surgery at the Stanford Department of Ophthalmology between February 2004 and February 2005 were asked to participate in the study"

Blinding of participants and personnel (performance bias)	Unclear risk	"The researcher obtaining the cultures was blinded to the randomization of the patient". Patients could not be blinded as they had to use the eye drops and no placebo was used
Blinding of outcome assessment (detection bias)	Unclear risk	"The microbiologist who interpreted the culture results was not able to be blinded regarding the patient´s group". Not reported if the person performing the statistical analyses was blinded
Incomplete outcome data (attrition bias)	Low risk	Large proportion of drop-outs (8.5%) but all patients were accounted for. Reasonable reasons for drop-outs/missing data
Selective reporting (reporting bias)	Low risk	Important outcomes reported
Other bias	Low risk	Not likely in this study

Inoue 2008

Methods	RCT, multicenter study Comparing the different dosing regimes of topical levofloxacin 0.5% Country and clinic: 12 clinics in Japan
Participants	Patients aged 60 years or older scheduled for cataract surgery Demographics of 1 hour group: Age (mean (SD)) 74.0 (7.33) yrs, 56.6% male Demographics of 1 day group: Age (mean (SD)) 72.5 (6.62) yrs, 44.9% male Demographics of 3 day group: Age (mean (SD)) 74.0 (6.03) yrs, 38.0% male
Interventions	Group 1: single application of levofloxacin 0.5% 1 hour before surgery Group 2: single application of levofloxacin 0.5% 1 hour before surgery + three applications of levofloxacin 0.5% the day before surgery Group 3: single application of levofloxacin 0.5% 1 hour before surgery + three application of levofloxacin 0.5% every day for three days before surgery Sample time points: T0: before levofloxacin (ranging from 7 days before treatment to immediately before the initial administration). T1: after the final adminstration of levofloxacin but before skin disinfection
Outcomes	Rate of positive cultures: Group 1: T0: 76/76, T1: 45/76 Group 2: T0: 89/89, T1: 44/89 Group 3: T0: 79/79, T1: 31/79
Notes	Funding: Waksman Foundation of Japan. Conflicts of interests not reported

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"Patients were randomly allocated to the following six groups using a central registration method via the Internet"
Allocation concealment (selection bias)	Unclear risk	Not reported

Blinding of participants and personnel (performance bias)	Unclear risk	Not possible to blind patients as to whether they used topical antibiotic for 1 hour, 1 day or 3 days since no placebo was used. Not reported if personnel was blinded
Blinding of outcome assessment (detection bias)	Unclear risk	Not reported
Incomplete outcome data (attrition bias)	Unclear risk	"There were 51 patient discontinuations (14%)". Reason for discontinuation given in for all cases. Not reported if discontinued patients were similar to reported patients
Selective reporting (reporting bias)	Low risk	Important outcomes reported
Other bias	Low risk	Not likely in this study

Kaspar 2008

Methods	RCT Compares culture positive conjunctival samples in patients randomized to levofloxacin or no topical antibiotic Country and clinic: Department of Ophthalmology, Ludwig-Maximilians-University, Munich, Germany
Participants	Patients undergoing intraocular surgery (cataract surgery (n=101), pars plana vitrectomy (n=16), glaucoma surgery (n=6), keratoplasty (n=6), other (n=3)) Demographics of study population: Age (mean) 67.8 yrs, 65.9% women
Interventions	Group 1: topical 0.5% levofloxacin 4 times the day before surgery and 3 times in 5 minute intervals beginning 1 hour prior to surgery Group 2: no topical antibiotic All patients received povidone-iodine wash Sample time points: T0: baseline, 2-7 days before surgery, before topical antibiotic. T1: morning of surgery, before the application of 0.5% levofloxacin in Group 1
Outcomes	Number of positive cultures (thioglycolate broth): Group 1: T0: 55/67, T1: 50/67 Group 2: T0: 55/65, T1: 57/65
Notes	The study received financial support from Santen GmbH and the Hannelore-Georg Zimmerman Foundation. No conflict of interests reported.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"Assignments were generated randomly with the Excel software program"
Allocation concealment (selection bias)	Low risk	"A baseline conjunctival swab was performed 2-7 days before surgery , and the patient was given a sealed envelope containing a random assignment to the specific treatment group"

Blinding of participants and personnel (performance bias)	High risk	"Patients learned about their group assignment by their treating ophthalmologist, who opened the envelope and explained the specific preoperative prophylactic regimen"
Blinding of outcome assessment (detection bias)	Low risk	"The individuals who obtained the conjucntival cultures at T0 and T1 as well as the surgeon who obtained the culture samples at T2 and T3 were masked as to whether the patient was in Group 1 or 2. The microbiologist... was masked as to the patient´s group assignment"
Incomplete outcome data (attrition bias)	Low risk	"8 patients were excluded from evaluation because they withdrew from the study (n=4) or because they missed surgery or missed culture swabs (n=4). Comparison of drop-outs between the two groups revealed no statistical difference"
Selective reporting (reporting bias)	Low risk	Important outcome was reported
Other bias	Low risk	Not likely to have occured in this study

Moss 2009

Methods	RCT Compares conjunctival flora in eyes randomized to three day pre-operative gatifloxacin versus no pretreatment Country and clinic: California Vitreoretinal Center, Stanford University, California
Participants	Patients scheduled for intravitreal injections Demographics of study population: Age (mean (SD)) 77.2 (12.8) yrs, 62.8% females
Interventions	Group 1: no antibiotic treatment, n=136 Group 2: topical gatifloxacin one drop four times daily for three days, n=137 Sample time: C0: contralateral eye on the day of injection. T1: injection site before povidone-iodine application but after gatifloxacin in Group 2
Outcomes	Septicheck broth, number of positive samples: Group 1: C0: 49% (~67/136), T1: 48% (~65/136) Group 2: C0: 37% (~51/137), T1: 21% (~29/137)
Notes	Funding: Stanford Medical Scholars Grant and Allergan

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Patients were randomly assigned to either the study group... or the control group". No further description of the randomization procedure provided
Allocation concealment (selection bias)	Unclear risk	Not reported

Blinding of participants and personnel (performance bias)	Unclear risk	"The individuals obtaining the cultures... were masked". Patients could not be masked to whether they used antibiotic or not since it was not a blinded study
Blinding of outcome assessment (detection bias)	Low risk	"The individuals... analysing the the results were masked with regard to group assignment"
Incomplete outcome data (attrition bias)	Low risk	No report of drop-outs or missing data
Selective reporting (reporting bias)	Low risk	Important outcomes reported
Other bias	Unclear risk	"A toral of 273 injections were performed in 129 patients". Study group: n=137 and control group: n= 136, in other words: each patient contributed more than once, the 137/136 observations in the study/control group were not independent

Råen 2013

Methods	Retrospective observational study Compares the incidence of endophthalmitis in a time period where topical chloramphenicol drops was used versus a time-period where it was not used.
Participants	Patients who had surgery for age-related cataract Demographics of study population not provided
Interventions	Group 1: received topical chloramphenicol Group 2: no topical antibiotic was used
Outcomes	Endophthalmitis rate was 5/7123 in Group 1 and 4/8131
Notes	Funding or conflict of interests not reported

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	"Until January 2007, all patients ... were given ... chloramphenicol 5 mg/ml... From January 2007, the standard postoperative medication changed to only dexamethasone"
Allocation concealment (selection bias)	High risk	Surgeons knew the date when the antibiotic regime changed
Blinding of participants and personnel (performance bias)	High risk	Neither patients nor personnel was blinded
Blinding of outcome assessment (detection bias)	Low risk	Not likely that endophthalmitis cases were not correctly reported at either time period
Incomplete outcome data (attrition bias)	Low risk	Not likely that endophthalmitis cases were missed
Selective reporting (reporting bias)	Low risk	Important outcome reported
Other bias	Low risk	Not likely to have occured in this study

Ta 2002

Methods	RCT Compares the effect of 3 day versus 1 hour topical ofloxacin on the conjunctival flora Country and clinic: Department of Ophthalmology, Stanford University, California and Department of Ophthalmology, Ludwig-Maximilians-University, Munich, Germany
Participants	Patients undergoing cataract surgery Demographics of study population not reported
Interventions	Group 1: one drop of topical ofloxacin 0.3% every 5 minutes three times Group 2: one drop of topical ofloxacin 0.3% every 5 minutes three times + four times daily for 3 days Sample time points: T0: five days before surgery and before antibiotic treatment. T2: after 1 hour preoperative antibiotic application but before povidone-iodine
Outcomes	Thioglycolate broth, number of positive samples: Group 1: T0: 28/47, T2: 24/48 Group 2: T0: 28/41, T2: 11/44
Notes	Funding: Edward E. Hills Fund, Allergan, Hannelore-Georg Zimmerman Foundation

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"The excel software program was used to generate random numbers that were assigned to each patient"
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding of participants and personnel (performance bias)	High risk	"The individual who obtained the conjunctival cultures at T0, T1 and T2 were not masked". The patients could not be masked to whether they used topical antibiotic or not since it was not a blinded study
Blinding of outcome assessment (detection bias)	Unclear risk	"The microbiologist responsible for isolating and identifying the bacteria was not masked". Not reported if the person performing the statistical analyses was masked
Incomplete outcome data (attrition bias)	Unclear risk	Uneven number of samples at different sample times. The reason for not obtaining the missing samples not reported
Selective reporting (reporting bias)	Low risk	Important outcomes reported
Other bias	Low risk	Not likely in this study

Footnotes

Characteristics of excluded studies

Alexandrou 2006

Reason for exclusion	RCT. Evaluates the effect on conjunctival flora of nasal mupirocin ointment versus no nasal ointment prior to cataract surgery. Did not evaluate the effect of topical (eye) antibiotic

Aslan 2008

Reason for exclusion	Interventional, non-randomised study evaluating the effect of topical netilmicin on the conjunctival flora

Bucci 2004

Reason for exclusion	RCT. Compares aqeuous humor concentrations of topically applied levofloxacin and ciprofloxacin. Does not evaluate the incidence of endophthalmitis or the number of positive conjunctival samples

Camesasca 2007

Reason for exclusion	RCT. Compares chloramphenicol-betamethasone gel to tobramycin-dexamethasone drops. Does not evaluate the incidence of endophthalmitis or the number of positive conjunctival samples

Colin 2003

Reason for exclusion	RCT. Compares aqueous humor concentration of levofloxacin and ciprofloxacin. Does not evaluate the incidence of endophthalmitis or the number of positive conjunctival samples

Deramo 2006

Reason for exclusion	Case report. Reporting antibiotic sensitivity pattern in eyes diagnosed with endophthalmitis that had used topical gatifloxacin and moxifloxacin since surgery. Does not compare the incidence of endophthalmitis in different group receiving topical versus no topical antibiotics

Donnenfeld 2011

Reason for exclusion	RCT. Compares aqueous humor concentration of besofloxacin, moxifloxacin and gatifloxacin after topical application. Does not report the incidence of endophthalmitis or the number of positive conjunctival samples

Friling 2013

Reason for exclusion	Retrospective study. Evaluates the effect of single-dosing topical antibiotic

Ghazi-Nouri 2003

Reason for exclusion	Prospective study comparing aqueous humor concentration of orally and topically applied ciprofloxacin. Does not report the incidence of endophthalmitis or the number of positive conjunctival samples

Güngör 2011

Reason for exclusion	RCT. Compares aqueous humor concentration of moxifloxacin and gatifloxacin. Does not evaluate the incidence of endophthalmitis or the number of positive conjunctival samples.

Halachimi-Eyal 2009

Reason for exclusion	RCT. Evaluates the effect of topical moxifloxacin 0.5% + povidone-iodine or saline + povidone-iodine on the conjunctival flora. No samples taken before application of povidone-iodine, thus the effect of moxifloxacin alone is not reported

Ishida 2011

Reason for exclusion	Interventional study evaluating the aqueous humor concentration after combined topical and oral treatment with levofloxacin. Does not compare to a group not receiving topical antibiotic. Does not evaluate the incidence of endophthalmitis or the effect on the conjunctival flora

Jensen 2005

Reason for exclusion	Retrospective study comparing endophthalmitis rate after topical ciprofloxacin or topical ofloxacin. Does not compare to a group not receiving topical antibiotic

Jensen 2008

Reason for exclusion	Retrospective study comparing endophthalmitis rate after third- and fourth-generation fluoroquinolones. Does not compare to a group not receiving topical antibiotic

Kampougeris 2005

Reason for exclusion	Interventional study evaluating the penetration of oral moxifloxacin 400 mg twice into the anterior chamber

Kaspar 2004

Reason for exclusion	RCT. Compares the effect on contamination of surgical knives after +/- topical ofloxacin 4 times daily for 3 days preoperatively. All patients received topical ofloxacin 1 hour before surgery. Does not compare to a group not receiving topical antibiotic

Katz 2005

Reason for exclusion	RCT. Reports aqueous humor concentration of topically applied moxifloxacin after different dosing regimes. Does not evaluate the incidence of endophthalmitis or the number of positive conjunctival samples.

Kobayakawa 2003

Reason for exclusion	RCT. Reports the concentration of levofloxacin in aqueous humor after oral and topical dosing. Does not evaluate the incidence of endophthalmitis or the number of positive conjunctival samples.

Koch 2005

Reason for exclusion	RCT. Reports aqueous humor concentration of topically applied levofloxacin and ofloxacin. Does not evaluate the incidence of endophthalmitis or the number of positive conjunctival samples.

Kumar 2012

Reason for exclusion	RCT. Comparing aqueous humor contamination after SICS and phaco. All patients received topical ofloxacin and povidone-iodine. Does not compare to a group not receiving topical antibiotic

Li 2004

Reason for exclusion	Population-based study. Does not evaluate the effect of topical antibiotics

Lloyd 2009

Reason for exclusion	Retrospective study. Does not compare endophthalmitis rates in patients receiving topical or no topical antibiotics

Malhotra 2012

Reason for exclusion	RCT. Compares safety of two topical antibiotic (besifloxacin 0.6% versus moxifloxacin 0.5%). Does not evaluate rate of endophthalmitis or the effect on the conjunctival flora

Mizuki 2005

Reason for exclusion	Interventional study comparing aqueous humor concentration of intravenous flomoxef sodium and topical levofloxacin. Does not evaluate the effect on the conjunctival flora or the rate of endophthalmitis

Moshifar 2007

Reason for exclusion	Retrospective study comparing endophthalmitis rates after gatifloxacin and moxifloxacin. Does not compare rates to a group not receiving topical antibiotic

Moss 2008

Reason for exclusion	Prospective, comparative case series evaluating the effect of one day versus one hour topical gatifloxacin on the conjunctival flora

Ness 2011

Reason for exclusion	Retrospective study. All patients and cases received the same prophylactic regime

Norcross 2010

Reason for exclusion	Experimental animal study comparing anterior chamber infection after topical fluoroquinolones or PBS

Ong-Tone 2008

Reason for exclusion	RCT. Compares aqueous humor concentration of gatifloxacin and moxifloxacin eye drops. Does not evaluate the effect on the conjunctival flora

Pea 2005

Reason for exclusion	Interventional study evaluating anterior chamber concentration of oral levofloxacin. Does not evaluate the effect on the conjunctival flora

Solomon 2005

Reason for exclusion	Interventional study comparing aqueous humor concentration of topical gatifloxacin, moxifloxacin and ciprofloxacin. Does not evaluate the effect on the conjunctival flora

Sundelin 2009

Reason for exclusion	Interventional study comparing different dosing regimes of topical levofloxacin on aqeuous humor concentration. Does not evaluate the effect on the conjunctival flora

Ta 2008

Reason for exclusion	Interventional, non-randomized study. Evaluates the effect of topical moxifloxacin on the conjunctival flora.

Teshigawara 2007

Reason for exclusion	Interventional study. Compares aqueous humor concentraiton of topical gatifloxacin. Does not evaluate the effect on the conjunctival flora

Vasavada 2008

Reason for exclusion	RCT evaluating the effect of 2 moxifloxacin regimens. Reports number of colony forming units but not the number of positive conjunctival samples

Wong 2004

Reason for exclusion	Retrospective case-control. Does not evaluate the effect of topical antibiotics

Xuan 2010

Reason for exclusion	RCT. Does not evaluate the incidence of endophthalmitis or the number of positive conjunctival samples.

Footnotes

Characteristics of studies awaiting classification

Footnotes

Characteristics of ongoing studies

Footnotes

Summary of findings tables

Additional tables

References to studies

Included studies

Coskun 2007

[Other: j Ocul Pharmacol Ther; 27 (6): 589-592]

[Empty]

ESCRS Study 2007

[Other: J Cataract Refract Surg; 33: 978-988]

[Empty]

He 2009

[Other: J Ocul Pharmacol Ther; 25 (4): 373-378]

[Empty]

Inoue 2008

[Other: Jpn J Ophthalmol; 52: 151-161]

[Empty]

Kaspar 2008

[Other: Am J Ophthalmol; 145: 136-142]

[Empty]

Moss 2009

[Other: Ophthalmology; 116: 1498-1501]

[Empty]

Råen 2013

[Other: Acta Ophthalmol; 91: 118-122]

[Empty]

Ta 2002

[Other: Ophthalmology; 109: 2036-2014]

[Empty]

Excluded studies

Alexandrou 2006

[Other: Trans Am Ophthalmol; 104: 196-201]

[Empty]

Aslan 2008

[Other: Eur J Ophthalmol; 18: 512-6]

[Empty]

Bucci 2004

[Other: Am J Ophthalmol; 137: 308-311]

[Empty]

Camesasca 2007

[Other: Eur J Ophthalmol; 17 (5): 733-742]

[Empty]

Colin 2003

[Other: Acta Ophthalmol Scand; 81: 611-613]

[Empty]

Deramo 2006

[Other: Am J Ophthalmol, 142: 721-725]

[Empty]

Donnenfeld 2011

[Other: J Cataract Refract Surg; 37: 1082-1089]

[Empty]

Friling 2013

[Published in: J Cataract Refract Surg; 39: 15-21]

[Empty]

Ghazi-Nouri 2003

[Other: Clin Exp Ophthalmol; 31: 40-43]

[Empty]

Güngör 2011

[Other: Br J Ophthalmol; 95: 1272-1275]

[Empty]

Halachimi-Eyal 2009

[Other: J Cataract Refract Surg; 35: 2109-2114]

[Empty]

Ishida 2011

[Other: J Ocul Pharmacol Ther; 27 (3): 247-250]

[Empty]

Jensen 2005

[Other: Am j Ophthalmol; 139: 141-148]

[Empty]

Jensen 2008

[Other: J Cataract Refract Surg; 34: 1460-1467]

[Empty]

Kampougeris 2005

[Other: Br J Ophthalmol; 89: 628-631]

[Empty]

Kaspar 2004

[Other: Ophthalmology; 111: 135-1355]

[Empty]

Katz 2005

[Other: Cornea; 24: 955-958]

[Empty]

Kobayakawa 2003

[Other: Ophthalmic Res; 35: 97-101]

[Empty]

Koch 2005

[Other: J Cataract Refract Surg; 31: 1377-1385]

[Empty]

Kumar 2012

[Other: Ind J Ophthalmol; 60 (1): 41-44]

[Empty]

Li 2004

[Other: Invest Ophthalmol Vis Sci; 45: 1321-1328]

[Empty]

Lloyd 2009

[Other: Can J Ophthalmol; 44: 288-292]

[Empty]

Malhotra 2012

[Other: Clin Ophthalmol; 6: 855-863]

[Empty]

Mizuki 2005

[Other: Ocul Immunol Inflam; 13: 229-234]

[Empty]

Moshifar 2007

[Other: Ophthalmology; 114: 686-691]

[Empty]

Moss 2008

[Other: Ophthalmology; 115: 2013-2016]

[Empty]

Ness 2011

[Other: J Hosp Infect; 78: 138-142]

[Empty]

Norcross 2010

[Other: J Ocul Pharmacol Ther; 26 (3): 237-243]

[Empty]

Ong-Tone 2008

[Other: J Cataract Refract Surg; 34: 819-822]

[Empty]

Pea 2005

[Other: Antimicrob Agents Chemother; 49 (6): 2554-2557]

[Empty]

Solomon 2005

[Other: Ophthalmology; 112: 466-469]

[Empty]

Sundelin 2009

[Other: Acta Ophthalmol; 87: 160-165]

[Empty]

Ta 2008

[Other: J Ocul Pharmacol Ther; 24 (4): 427-431]

[Empty]

Teshigawara 2007

[Other: Ocul Immunol Inflam; 15: 309-313]

[Empty]

Vasavada 2008

[Other: J Cataract Refract Surg; 34: 1383-1388]

[Empty]

Wong 2004

[Other: Br J Ophthalmol; 88: 29-31]

[Empty]

Xuan 2010

[Other: Chin Med J; 123 (1): 2105-2110]

[Empty]

Studies awaiting classification

Ongoing studies

Other references

Additional references

Other published versions of this review

Data and analyses

1 Endophthalmitis rates after perioperative topical antibiotic

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
1.1 Endophthalmitis rate, RCT	1	16211	Risk Ratio (M-H, Random, 95% CI)	0.71 [0.34, 1.48]
1.2 Endophthalmitis rate, observational	1	15254	Risk Ratio (M-H, Random, 95% CI)	1.43 [0.38, 5.31]

2 Number of positive conjunctival samples

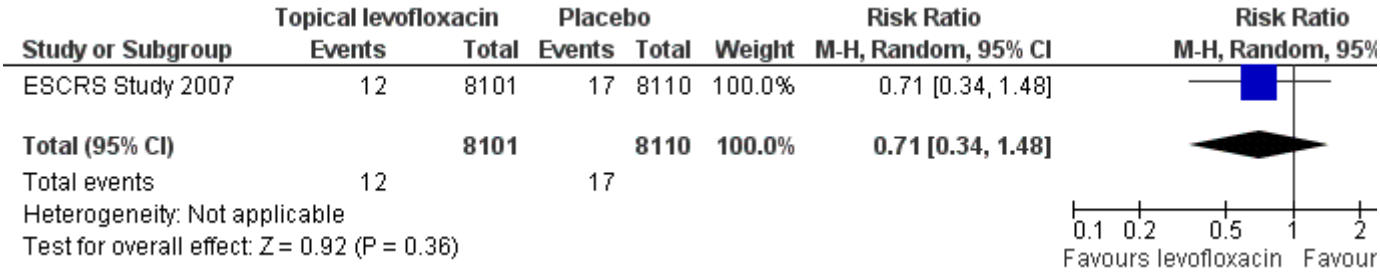
Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
2.1 1 hour topical application	2	247	Risk Ratio (M-H, Fixed, 95% CI)	0.69 [0.58, 0.82]
2.2 1 day topical antibiotic	4	660	Risk Ratio (M-H, Fixed, 95% CI)	0.46 [0.40, 0.52]
2.3 3 days topical antibiotic	4	631	Risk Ratio (M-H, Fixed, 95% CI)	0.44 [0.37, 0.53]

3 Number of positive conjunctival samples, treatment length

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
3.1 1 hour versus 3 day topical antibiotic	2	247	Risk Ratio (M-H, Random, 95% CI)	1.62 [1.21, 2.16]
3.2 1 day versus 3 days topical treatment	2	288	Risk Ratio (M-H, Random, 95% CI)	1.16 [0.88, 1.54]

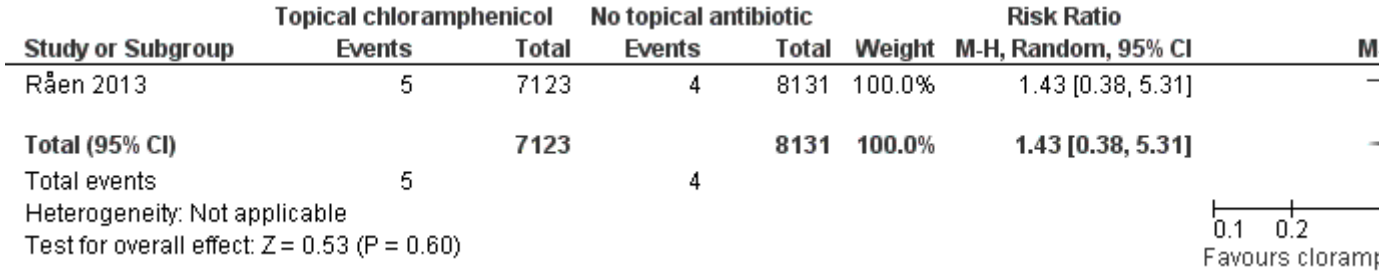
Figures

Figure 1 (Analysis 1.1)



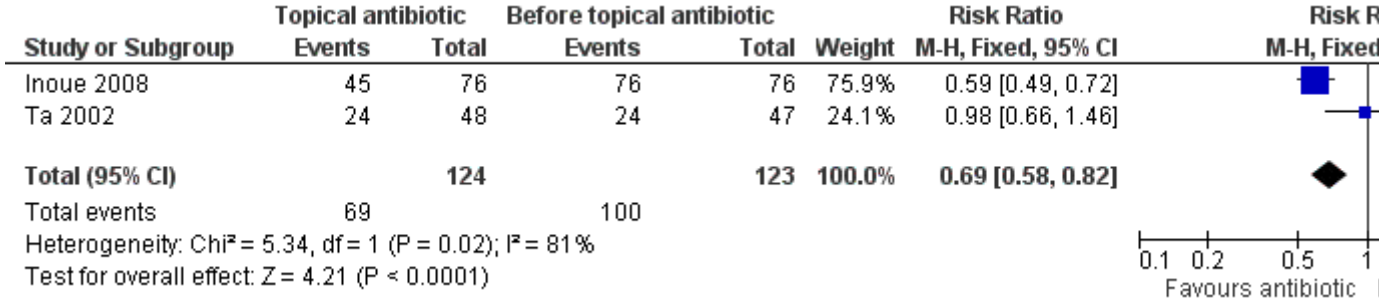
Forest plot of comparison: 1 Endophthalmitis rates after perioperative topical antibiotic, outcome: 1.1 Endophthalmitis rate, RCT.

Figure 2 (Analysis 1.2)



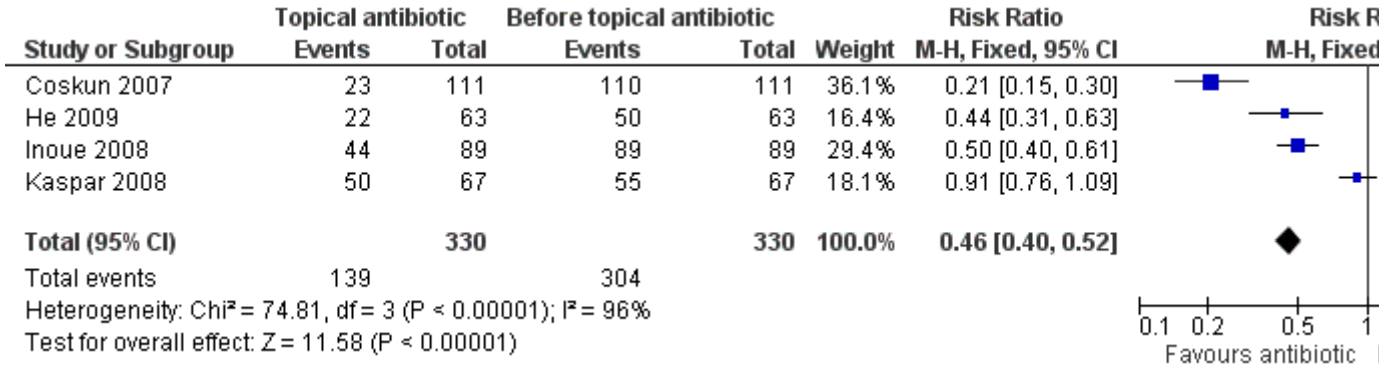
Forest plot of comparison: 1 Endophthalmitis rates after perioperative topical antibiotic, outcome: 1.2 Endophthalmitis rate, observational.

Figure 3 (Analysis 2.1)



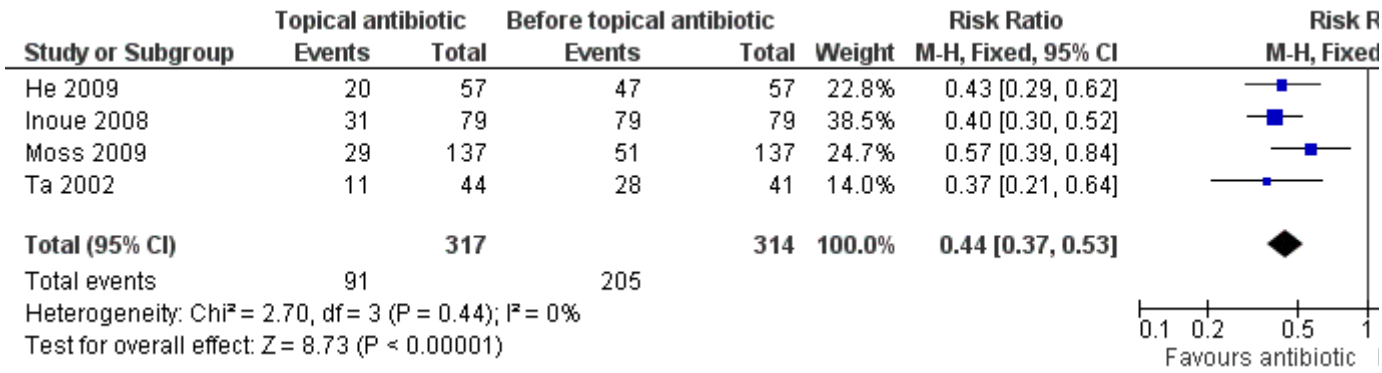
Forest plot of comparison: 2 Number of positive conjunctival samples, outcome: 2.1 1 hour topical application.

Figure 4 (Analysis 2.2)



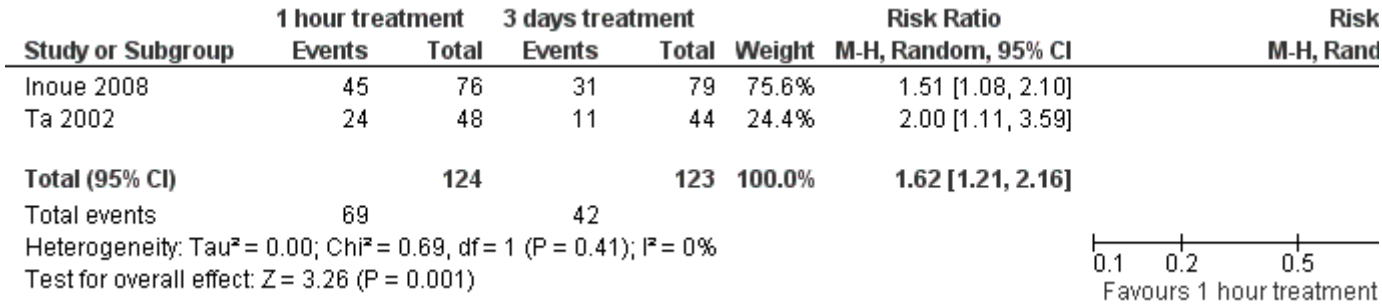
Forest plot of comparison: 2 Number of positive conjunctival samples, outcome: 2.2 1 day topical antibiotic.

Figure 5 (Analysis 2.3)



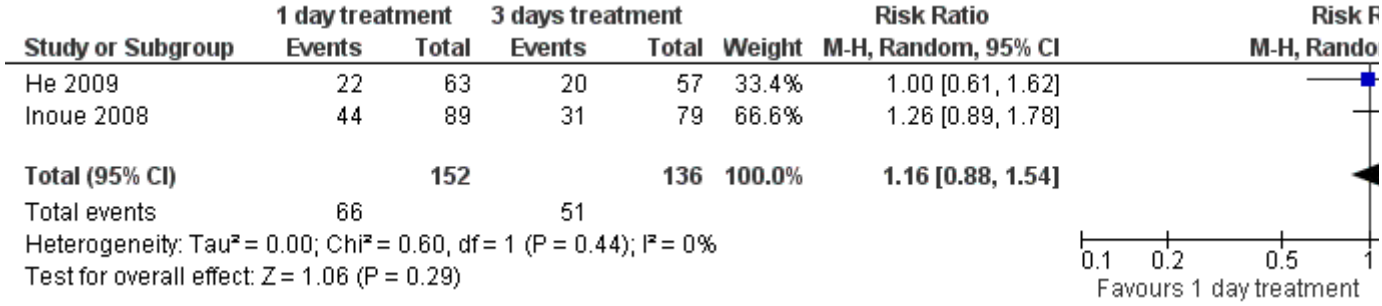
Forest plot of comparison: 2 Number of positive conjunctival samples, outcome: 2.3 3 days topical antibiotic.

Figure 6 (Analysis 3.1)



Forest plot of comparison: 3 Number of positive conjunctival samples, treatment length, outcome: 3.1 1 hour versus 3 day topical antibiotic.

Figure 7 (Analysis 3.2)



Forest plot of comparison: 3 Number of positive conjunctival samples, treatment length, outcome: 3.2 1 day versus 3 days topical treatment.

Sources of support

Internal sources

- No sources of support provided

External sources

- No sources of support provided

Feedback

Appendices