

Nut en Onnut' *Antibiotic prophylaxis* *in Intraocular Surgery*



(potentiële) belangenverstrengeling	Geen
Voor bijeenkomst mogelijk relevante relaties met bedrijven	Geen
<ul style="list-style-type: none">• Sponsoring of onderzoeksgeld• Honorarium of andere (financiële) vergoeding• Aandeelhouder• Andere relatie, namelijk ...	Geen Geen Geen Geen

LU *Pathogenesis of surgical site infection* **MC** *every (artificial) wound is contaminated!*

..... infection of a surgical wound occurs whenever the microbial inoculum in the wound is *sufficient to overcome* the local host defense mechanisms and establish progressive growth

microbial contamination of a surgical wound occurs universally!

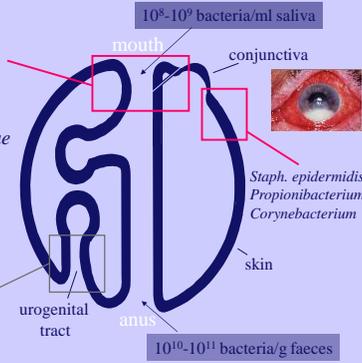
LU Human host – pathogens (~1 kg!)
MC microbial flora around eye

Potential pathogens:

- *Strep. pneumoniae*
- *Staph. aureus* (nose)
- streptococci (throat)
- *Haemophilus influenzae*
- *Pseudomonas spp*
- *Candida albicans*

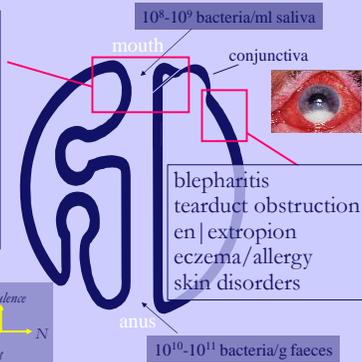
Non-pathogenic:
 • anaerobes (100:1)

Neisseria gonorrhoeae
Chlamydia trachomatis

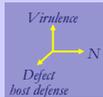


LU Human host – pathogens (~1 kg!)
MC dynamics of microbial flora around eye

- nasal colonisation
 age
 diabetes mellitus
 alcoholism
 COPD
 prior antibiotic use
 immunosuppressive
 medication/disease
 'institutionalized'



Nam et al, BMC Infect Dis 2015
 Chang et al, Int Ophthalmol 2008
 Goover et al, Ophthalmology 2015
 Pijl et al, Am J Ophthalmol 2010
 Lee et al, Retina 2012



LU Antibiotic prophylaxis in ocular surgery
MC relevant questions to answer

- Rate of infection in absence of prophylaxis?
 - endophthalmitis: low risk (~0.12%) – high impact
- Which are the etiologic microorganisms?
- Is antibiotic prophylaxis possible?
- Is prophylaxis useful?
 - number needed-to-treat vs needed-to-harm
- Choice of antimicrobial drug
 - type of antibiotic – hospital policy / therapeutic arsenal
 - route of administration, dose and timing, and costs

Can we identify patients at high risk?

- risk stratification: individual risk vs everyone's burden

* Keay et al, Ophthalmology 2013

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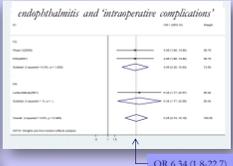
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- risk stratification: individual risk vs everyone's burden

Keay et al, Ophthalmology 2013

LU *Antibiotic prophylaxis in cataract surgery*
MC *risk factors for endophthalmitis*

	Unadjusted Relative Risk	95% CI	Adjusted Relative Risk	95% CI	
Age					
65–74 years	1.00	Reference	1.00	Reference	
75–84 years	1.12	1.04-1.19	1.11	1.04-1.19	
85+ years	1.58	1.43-1.74	1.53	1.38-1.69	
Sex					
Female	1.00	Reference	1.00	Reference	
Male	1.19	1.11-1.26	1.23	1.15-1.31	
Surgery volume					
1–50	4543 (38.3%)	4.17	3.47-5.01	3.80	3.13-4.61
51–200	4529 (38.2%)	2.42	2.06-2.84	2.32	1.97-2.74
201–500	2251 (19.0%)	1.89	1.61-2.22	1.84	1.56-2.17
501–1000	451 (3.8%)	1.30	1.09-1.55	1.30	1.09-1.56
1001+	97 (0.8%)	1.00	Reference	1.00	Reference
Surgeon experience					
1–10 years		1.55	1.38-1.74	1.41	1.25-1.59
11–20 years		1.18	1.06-1.28	1.22	1.12-1.33
21–30 years		1.06	0.97-1.15	1.10	1.01-1.20
30+ years		1.00	Reference	1.00	Reference



3 million cataract surgeries
 endophthalmitis ~1.2 per 1000
 increased risk:

- surgical volume / complications
- surgical years of experience
- age
- male
- race

Keay et al, Ophthalmology 2013
Cao et al, Plos One 2013

LU *Antibiotic prophylaxis in ocular surgery*
MC *relevant questions to answer*

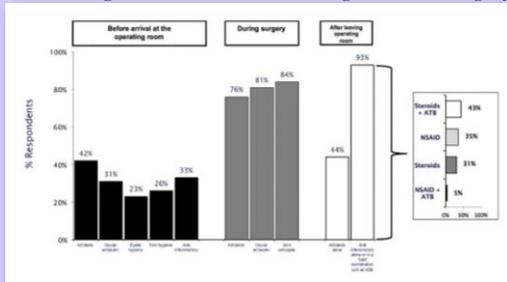
- Rate of infection in absence of prophylaxis?
 - endophthalmitis: low risk (~0.12%) – high impact
- Which are the etiologic microorganisms?
- Is antibiotic prophylaxis possible?
- Is prophylaxis useful?
 - number needed-to-treat *vs* needed-to-harm
 - as adjunct to and not a substitute for good surgical technique and peri-operative procedures
- Choice of antimicrobial drug
 - type of antibiotic – hospital policy/therapeutic arsenal
 - route of administration, dose and timing, and costs

Can we identify patients at high risk?

Keay et al, Ophthalmology 2013

LU Intracameral prophylaxis in cataract surgery
MC European observatory in 2013 – sociology

use of drug treatments before, during and after surgery

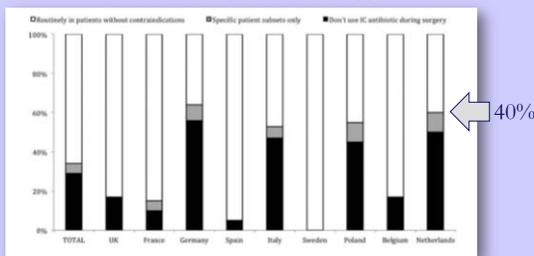


survey among 479/2700 European cataract surgeons
 of Japan topical – 93% 1 wk before, and >65% 1-2 mth after surgery

Behndig et al, J Cataract Refract Surg 2015
 Matsuura et al, Clin Ophthalmol 2014

LU Intracameral prophylaxis in cataract surgery
MC European observatory in 2013 – sociology

use of intracameral antibiotics



survey among 479/2700 European cataract surgeons
 NB. 5% used intracameral antibiotics only in specific patients groups, e.g. diabetics
 of Japan – 7%; USA – 30% (~20% in irrigation solution)

Behndig et al, J Cataract Refract Surg 2015
 Matsuura et al, Clin Ophthalmol 2014

LU Antibiotic prophylaxis in ocular surgery
MC evaluation of prophylactic studies

If satisfied with

- design
- methodology
- outcome relevant – not *always* better to prevent than treat
- power trial – Odd ratio itself is not relevant!
- consistency with literature – e.g., Sweden?

Ask yourself: do the findings apply to my practice?

Risk perception = hazard rate × outrage

- remember Hippocrates aphorism!! – science
- “first, lets kill all the lawyers” – medico-legal aspects



*Baat het niet,
het schaadt altijd!*

(if it doesn't help you it will always harm us)

.....optimal is not the same as maximal
