Effect of Introducing Routine Use of Intracameral Cefuroxime on Postoperative Endophthalmitis in Cataract Surgery

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Cataract Surgery

KEC Internal Audit (n =624)

91.36% visual improvement
6.3% vision stable
1.9% worsen

CATARACT SURGERY?

Simple!

Schedule your lens evaluation today!
Patient Expectation

- Extremely high
- John Hopkins 1995 - 61% achieved or surpassed the expectations
- Low awareness of complications

白內障手術會有什麼併發症？

所有手術均存著風險，但隨著科技日益發達，超過九成以上的白內障患者在手術順利完成後都不會出現併發症。雖然出現併發症的情況並不普遍，若一旦發生，患者的視力仍有可能被損害。

以下是一些較嚴重及威脅到視力的併發症：

- 眼內出血
- 受感染
- 青光眼
- 視網膜脫落或裂開
- 黃斑水腫
- 角膜內皮細胞變化
- 眼內殘留渾濁晶體的碎片，需進行第二次摘除手術
- 失明
Postop Endophthalmitis

• The most serious complication after cataract surgery, often resulting in blindness or even loss of globe.

• Incidence 0.5-3 per 1,000 cases (0.05-0.3%)
六病人手术后有眼内炎

【本报讯】医院眼内炎併发症个案轻微，未过百分之五。医院翻查纪录后发现十三岁的病人，曾于术後卫生防护中心曾到医院境污染情况。

兩人接受白内障手术后发炎

16.10.2012

卫生防护中心今日接获

Sun特搜：婆婆割白内障变独眼
医生：你唔好彩

10.12.2009

本文重点

- 左眼白内障唔敢做手术
  医院未有承認手术失败

【SUN特搜小组记者李嘉行、罗庆辉报道】公立医院又爆恐怖医疗事故，害七旬

霍婆婆坦言对香港的医护人员信心尽失。周景文摄
How can we prevent infection?

**PREOP**
- Povidone-iodine
- Topical and systemic antibiotics

**INTRAOP**
- Intracameral antibiotics
- Subconjunctival antibiotics
- Antibiotic in infusion fluid

**POSTOP**
- Topical antibiotics
- Systemic antibiotics
European Society of Cataract and Refractive Surgery 2007

• ESCR S Endophthalmitis Study Group
  • The prophylactic use of **intracameral cefuroxime** (2nd generation cephalosporin) was shown to be effective
  • Reduce the risk by a factor of 4.92
  • The routine use of intracameral cefuroxime was implemented in KEC since **April 2010**.
Cefuroxime

- 1 mg in 0.1 ml

- Aliquots prepared by TPN laboratory

- At 4°C, stable for 1 week

- At room temp, unstable in 24 hours
Method

• All cases that underwent cataract surgeries from
  • Jan 2004 to Jun 2012 in KEC were retrospectively reviewed.

• The rate of postoperative endophthalmitis was compared:
  – **Group 1**: before implement routine use of ICC
  – **Group 2**: after implement routine use of ICC
Perioperative Details

• Preoperative:
  - Both groups had 5% povidone-iodine antisepsis.

• Intraoperative:
  - **Group 1:** no intraoperative antibiotic prophylaxis
  - **Group 2:** intracameral cefuroxime
    - Except known allergy to penicillin/cephalosporin group antibiotics

• Postoperative:
  - Both groups had topical antibiotics (0.5% chloramphenicol or ciprofloxacin) and steroid (0.5% dexamethasone or 1% prednisolone)
## Results

- A total of **16,045** eyes were included

<table>
<thead>
<tr>
<th>Group</th>
<th>Total cases</th>
<th>Endophthalmitis Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 (No intracameral cefuroxime)</td>
<td>7332</td>
<td>8 (0.11%)</td>
</tr>
<tr>
<td>Group 2 (Routine use of intracameral cefuroxime)</td>
<td>8713</td>
<td>0</td>
</tr>
</tbody>
</table>

- Rate of post-operative endophthalmitis significantly reduced from **0.11% to 0%** (*p* = **0.002**, Fisher’s Exact test)
- No adverse reaction to intracameral cefuroxime was encountered.
Causative microorganisms of endophthalmitis cases in Group 1

- **Others (Culture negative / uncertain significance)**: 2 cases
- **Streptococcus Agalactiae (Group B)** (penicillin sensitive): 1 case
- **Staphylococcus aureua** (penicillin sensitive): 1 case
- **Serratia marcescens** (penicillin resistant): 1 case
- **Coagulase negative Staphylococcus** (penicillin resistant): 1 case
- **Group G Streptococcus** (penicillin sensitive): 2 cases
Conclusion

• After implementing the routine use of prophylactic intracameral cefuroxime to KEC, the rate of postoperative endophthalmitis after cataract surgery significantly reduced from 0.11% to 0% (p = 0.002).

• Two-thirds of the causative micro-organisms before routine intracameral cefuroxime were penicillin-sensitive and this further supports the use of intracameral cefuroxime in our locality.
HA Cataract Throughput
2008 - 2013

Total Annual Cataract throughput - 2008 to 2013

<table>
<thead>
<tr>
<th>Financial Year</th>
<th>No. of OTMS Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/09</td>
<td>9684</td>
</tr>
<tr>
<td>09/10</td>
<td>18580</td>
</tr>
<tr>
<td>10/11</td>
<td>22085</td>
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<tr>
<td>11/12</td>
<td>28624</td>
</tr>
<tr>
<td>12/13</td>
<td>27314</td>
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</tbody>
</table>
Universal Coverage

• Annual cataract throughput of 27,314

• Potentially prevent 30 cases of blindness per year