

# Intraoperative Iodine Disinfection for Cataract Surgery [Letter]

Kazuki Matsuura<sup>1,2</sup>, Yoshitsugu Inoue<sup>2,3</sup>

<sup>1</sup>Nojima Hospital, Kurayoshi-city, Tottori, 6820863, Japan; <sup>2</sup>Tottori University, Yonago-city, Tottori, 6838504, Japan; <sup>3</sup>Hino Hospital, Hino-gun, Tottori, 6894504, Japan

Correspondence: Kazuki Matsuura, Nojima Hospital, 2714-I, Sesaki-machi, Kurayoshi-city, Tottori, 6820863, Japan, Tel +81-858-22-6231, Fax +81-858-22-6843, Email matsuura.kzk@gmail.com

## Dear editor

We read the interesting paper by Jiang et al, who conducted a multicenter survey on the incidence, prophylaxis, and prognosis of endophthalmitis after cataract surgery in Northern China.<sup>1</sup> The authors described the significantly decreased acute endophthalmitis incidence after the application of 0.5% povidone-iodine (PVP-I) for conjunctival washing.

In 2016, we surveyed perioperative endophthalmitis prophylaxis for cataract surgery in Japan (Table 1).<sup>2</sup> Preoperative skin and conjunctival washing with PVP-I is popular, and >90% of surgeons employ these measures in Japan.

Appropriate use of antibiotics is becoming increasingly important to reduce antimicrobial resistant bacteria worldwide.<sup>3</sup> Intracameral antibiotic, which uses high-concentration antibiotics, is effective against antimicrobial resistant bacteria and less likely to produce antimicrobial resistant bacteria because of their single administration.

In recent years, the concept of intraoperative iodine disinfection has spread outside the field of ophthalmology, such as orthopedics, nerve and chest surgery, and gynecology, to avoid surgical site infection.<sup>4,5</sup> Intraoperative iodine disinfection for cataract surgery<sup>6,7</sup> is common in Japan, and 48% of surgeons adopt this procedure.<sup>2</sup> Iodine disinfection is effective against antimicrobial resistant bacteria regardless of the drugs and does not produce antimicrobial resistant bacteria.

In the present letter, previous data were recalculated and the effects of postoperative endophthalmitis prevention measures, including intraoperative iodine disinfection, were examined (Table 2). This study included 546 surgeons and 183,432 cases, and endophthalmitis was developed in 21 cases within 1 month postoperatively. Two-sided Fisher's exact test was used for statistical analysis, and probability values of <0.05 were considered significant.

**Table 1** Intraoperative Endophthalmitis Prophylaxis in Japan/China

	% of Surgeons Who Employ the Measure (Japan) <sup>2</sup>	% of Hospitals Which Employ the Measure (China) <sup>1</sup>
<b>Preoperative</b>		
Topical antibiotics	100%	100% (7/7)
PVP-I conjunctival washing	93%	72% (~2013: 5/7) 100% (2013~: 7/7)
<b>Intraoperative</b>		
Intraoperative iodine disinfection	48%	-
Intracameral antibiotics	8%	-
Subconjunctival antibiotic injection	24%	-
Antibiotics in irrigating solutions	19%	28% (2/7)
Ophthalmic antibiotic ointment	78%	100% (7/7)
<b>Postoperative</b>		
Topical antibiotics	98%	100% (7/7)

**Table 2** Occurrence of Endophthalmitis with and/or without the Prophylactic Measures

	Endophthalmic Cases/Total Cases with the Measure (%)	Endophthalmic Cases/Total Cases Without the Measure (%)	P-value
Intraoperative Iodine disinfection	5/93,090 (0.005%)	16/90,342 (0.018%)	0.016*
Intracameral antibiotics	0/15,839 (0.00%)	21/167,539 (0.013%)	0.252
Subconjunctival antibiotic injection	2/34,794 (0.006%)	19/148,638 (0.013%)	0.404
Antibiotics in irrigating solutions	2/42,423 (0.005%)	19/140,998 (0.013%)	0.195
Ophthalmic antibiotic ointment	17/133,798 (0.013%)	4/49,638 (0.008%)	0.623

**Notes:** \*represents the P value for two-sided Fisher's exact test was less than 0.05, which suggest the risk of endophthalmitis decreased with the measure.

**Abbreviation:** PVP-I, povidone-iodine.

The antibiotics were administrated intracamerally in 8% (15,839) of cases. None of the cases had endophthalmitis, but with no statistical significance.

Of the 284 and 262 surgeons without and with intraoperative iodine, 14 (4.92%) and 4 (1.53%) experienced endophthalmitis, respectively, which was a significant decrease ( $p=0.031$ ). Endophthalmitis occurred in 16 of 90,342 cases (0.018%) without intraoperative iodine and in 5 of 93,090 cases (0.005%) with intraoperative iodine, which was significantly lower ( $p=0.016$ ).

Intraoperative iodine disinfection is effective to prevent endophthalmitis after cataract surgery.

## Disclosure

Dr Yoshitsugu Inoue reports grants from Santen Pharmaceutical Company, outside the submitted work. The author reports no other conflicts of interest in this communication.

## References

- Jiang X, Wan Y, Yuan H., et al. Incidence, prophylaxis and prognosis of acute postoperative endophthalmitis after cataract surgery: a multicenter retrospective analysis in Northern China from 2013 to 2019. *Infect Drug Resist.* 2022;15:4047–4058. doi:10.2147/IDR.S332997
- Matsuura K, Mori T, Miyamoto T, et al. Survey of Japanese ophthalmic surgeons regarding perioperative disinfection and antibiotic prophylaxis in cataract surgery. *Clin Ophthalmol.* 2014;8:2013–2018. doi:10.2147/OPHTH.S64756
- Mendelson M, Matsoso MP. The world health organization global action plan for antimicrobial resistance. *S Afr Med J.* 2015;105(5):325. doi:10.7196/SAMJ.9644
- Goswami K, Austin MS. Intraoperative povidone-iodine irrigation for infection prevention. *Arthroplast Today.* 2019;5(3):306–308. doi:10.1016/j.artd.2019.04.004
- Onishi Y, Masuda K, Tozawa K, Karita T. Outcomes of an intraoperative povidone-iodine irrigation protocol in spinal surgery for surgical site infection prevention. *Clin Spine Surg.* 2019;32(10):E449–E452. doi:10.1097/BSD.0000000000000908
- Shimada H, Arai S, Nakashizuka H, Hattori T, Yuzawa M. Reduction of anterior chamber contamination rate after cataract surgery by intraoperative surface irrigation with 0.25% povidone-iodine. *Am J Ophthalmol.* 2011;151(1):11–17.e1. doi:10.1016/j.ajo.2010.07.002
- Matsuura K, Miyazaki D, Sasaki SI, Yakura K, Inoue Y, Sakamoto M. Effectiveness of timely intraoperative iodine irrigation during cataract surgery. *Jpn J Ophthalmol.* 2016;60(6):433–438. doi:10.1007/s10384-016-0471-z

Dove Medical Press encourages responsible, free and frank academic debate. The content of the Infection and Drug Resistance 'letters to the editor' section does not necessarily represent the views of Dove Medical Press, its officers, agents, employees, related entities or the Infection and Drug Resistance editors. While all reasonable steps have been taken to confirm the content of each letter, Dove Medical Press accepts no liability in respect of the content of any letter, nor is it responsible for the content and accuracy of any letter to the editor.

### Infection and Drug Resistance

Dovepress

### Publish your work in this journal

Infection and Drug Resistance is an international, peer-reviewed open-access journal that focuses on the optimal treatment of infection (bacterial, fungal and viral) and the development and institution of preventive strategies to minimize the development and spread of resistance. The journal is specifically concerned with the epidemiology of antibiotic resistance and the mechanisms of resistance development and diffusion in both hospitals and the community. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/infection-and-drug-resistance-journal>

<https://doi.org/10.2147/IDR.S404373>