

# Intraoperative Iodine Disinfection for Cataract Surgery [Letter]

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## 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

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