Topical Dilute Povidone Iodine (PI) Solution Is an Effective Alternative to 5% PI For Endophthalmitis Prophylaxis in Betadine Sensitive Patients
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INTRODUCTION

- Treatment of retinal disease by intravitreal injection (IVT) has increased exponentially over past decade.
- In 2004, published database included approximately 15,000 IVT’s over previous 10 years.1
- In 2014, Medicare recipients alone received over 2.6 million IVT’s.
- Endophthalmitis is one of the most dreaded complications of IVT despite its relatively low rate of around 0.019%-0.083% of IVT’s.2-7
- Endophthalmitis significantly reduced with povidone iodine (PI) antisepsis.
- True allergy to PI extremely rare, more commonly an irritant.

PURPOSE

- Rarely retina specialists are faced with the dilemma of how to treat patients with a self-reported betadine allergy/sensitivity.
- Endophthalmitis incidence increases dramatically in the absence of PI antisepsis.6-7
- To evaluate whether paradoxical increased germicidal activity seen in vitro applies when dilute PI solutions used for antisepsis with IVT’s, which may provide adequate prophylaxis during injection with better patient comfort and compliance.8

METHODS

- Retrospective chart review of patients in a single practice.
- Reviewed all occurrences of intravitreal injection between January 2011 to June 2016.
- IVT’s conducted for treatment of endophthalmitis excluded.
- Concentration of PI from each procedure recorded.
- All cases of endophthalmitis identified and reviewed.
- Unless the patient expressed sensitivity or allergy to PI, 5% solution was standardly employed.
- The next more dilute PI solution was applied at the subsequent injection if the patient experienced discomfort after the previous procedure (Figure 1)
- IVT’s were stratified into 3 groups: 5% PI, dilute PI, and no PI.
- Incidence of endophthalmitis in each group was recorded and odds ratios were calculated.

RESULTS

- A total of 35060 injections (IVT) in 1854 patients were identified over 5.5 years.
- 29281 IVTs were performed with 5% PI, 5460 IVTs with dilute PI (n=3731 with 2.5% PI, n=1672 with 1.25% PI, n=56 with 0.625% PI), and 319 IVT’s with no betadine (Table 1).
- A total of 295 (15.9%) patients received at least one IVT with either diluted PI or no PI.
- Fourteen cases of endophthalmitis occurred for an overall incidence rate of 0.04%. Undiluted 5% PI was utilized in 12 cases (85.7%), 1.25% PI in one case (7.1%), and no betadine in one case (7.1%). (Table 1)
- Incidence of endophthalmitis after IVT with 5% PI, dilute PI, and no PI were 0.041%, 0.018%, and 0.314% respectively.
- Withholding PI, conferred a higher incidence of endophthalmitis when compared to 5% PI (OR= 7.652, 95% CI 0.99-59.03, p=0.0509), as well as dilute PI (OR= 17.167, 95% CI 1.07-361.75, p=0.0446). Rates of endophthalmitis were also less in IVT’s with dilute PI when compared to 5% PI (OR= 0.4457, 95% CI 0.058-3.429, p=0.4367).
- For all cases of endophthalmitis identified (Table 1), A total of 29281 IVTs were performed with 5% PI, 5460 IVTs with dilute PI (n=3731 with 2.5% PI, n=1672 with 1.25% PI, n=56 with 0.625% PI), and 319 IVT’s with no betadine.
- Incidence of PI sensitivity is fairly high at 16% and may be underestimated and lead to non-compliance.

CONCLUSIONS

- Application of dilute povidone iodine (PI) solution to the conjunctiva at the time of injection is an effective alternative to 5% PI for endophthalmitis prophylaxis in betadine sensitive patients.
- Dilute PI decreases odds of infection compared to no PI and trends toward protective when compared to 5% PI which concurs with in vitro paradoxical increased antimicrobial activity.8 (Figure 2)
- Incidence of PI sensitivity is fairly high at 16% and may be underestimated and lead to non-compliance.

REFERENCES