Original Research Article

Evaluation of ocular pain after different application techniques of topical proparacain 0.5% drops for intravitreal injections

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Abstract

Aim: To evaluate ocular pain after different application techniques of topical proparacain 0.5% drops for intravitreal injections **Materials and methods:** A prospective, non randomized, single centre and surgeon, crossover comparative study was done in consecutive 36 patients undergoing multiple intravitreal injection of ranibizumab 0.05ml in the same eye for various retinal pathologies. All the patients were explained about VAS pain score (0 to10 scale). Topical proparacaine 0.5% was instilled prior and after sterile draping and wire speculum application. After 5 minutes, topical povidone iodine 5% was instilled. Pain score was measured using VAS analogue immediately after intravitreal injection. Same procedure was followed for monthly second dose of intravitreal injection except for addition of local application of pledget soaked in topical proparacaine 0.5% at the site of injection for 5 minutes prior instillation of topical povidone iodine 5% and VAS score was recorded immediately after the procedure. **Results:** Mean vas score after first injection was 5.16 with 1.38 standard deviation (SD) with range from (2-8). Mean pain score for the second injection was 0.05 (sd 0.23) with range from (0-1). Median pain score was 5 after first injection while it was 0 after second injection. Pledget application technique was significantly better in achieving painless procedure (unpaired t test $p<0.001$). 31/36 (86%) patients required oral NSAID while none required after giving the second injection. **Conclusion:** Addition of local application of pledget soaked in proparacaine in patients undergoing intravitreal injection under topical instillation of proparacaine significantly reduces perceived ocular pain during intravitreal injections.

Key Word: Topical proparacaine, Intravitreal, pledget.

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INTRODUCTION

Intravitreal injection is commonly performed procedure in retina centres worldwide for various retinal conditions. Most of the patients are apprehensive of ocular pain following intravitreal injection. Various methods of anaesthesia including peribulbar block, subconjunctival injection as well as topical instillations have been compared with different anaesthetic drugs such as lignocaine, proparacaine and bupivacaine. In addition being convenient in daycare setup, topical proparacaine 0.5% has been reported to cause less ocular pain in various studies. (1-5) We tried to evaluate difference in perceived ocualar pain following only instillation of topical proparacaine and additional 5 minutes soaked pledget local application.

MATERIAL AND MEHODS

A prospective, non randomised, single centre and surgeon, crossover comparitive study was done in consequitive 36 patients undergoing multiple intravitreal injection of ranibizumab 0.05ml in the same eye for various retinal pathologies. Ethics committee approval and informed consents were obtained. All the patients were explained about VAS pain score (0 to10 scale).

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Topical proparacaine 0.5% was instilled prior and after sterile draping and wire speculum application. After 5 mins topical povidone iodine 5% was instilled. A 30 gauge needle was used for parsplana first intravitreal injection. Pain score was measured using VAS analogue immediately after intavitreal injection. Same procedure was followed for monthly second dose of intravitreal injection except for addition of local application of pledget soaked in topical proparacaine 0.5% at the site of injection for 5 minutes prior instillation of topical povidone iodine and VAS score was recorded immediately after the procedure. Patients were given oral NSAID (Tab Brufen 400 mg) on demand for ocular pain after procedure.

RESULTS

36 patients (17 males and 19 females) were enrolled for the study. Eighteen right and left eye each received intravitreal first dose of injection. 20 eyes out of 36 eyes were phakic while 16 were pseusophakics. Mean VAS score after first injection was 5.16 with 1.38 standard deviation (sd) with range from (2-8). Mean pain score for the second injection was 0.05 (sd 0.23) with range from (0-1). Median pain score was 5 after first injection while it was 0 after second injection. Pledget application technique was significantly better in achieving painless procedure (unpaired t test $p<0.001$). 31/36 (86%) patients required oral NSAID while none required after giving the second injection.

	Age	Sex	Lens status	Vas score	NSAID	Second injection Paracain and pellet	Lens status	VAS Score	NSAID
1.DME	66	m	ph	6	yes	Rt eye	ph*	o	NO
2.BRVO with ME	57	f	ph	7	yes	Lt eye	ph	o	NO
3. DME	51	f	ps	7	yes	Rt eye	ph	1	NO
4. DME	68	f	ps	3	NO	Rt eye	ps*	0	NO
5. CNVM	73	m	ps	5	yes	Rt eye	ps	0	NO
6. CRVO with ME	75	f	ph	7	yes	Lt eye	ph	0	NO
7. DME	52	m	ps	6	yes	Rt eye	ps	0	NO
8. Post op CME	83	m	ps	7	yes	Rt eye	ps	0	NO
9. DME	74	f	ph	7	yes	Right eye	ph	0	NO
10. CNVM	80	f	ph	5	yes	Left eye	ph	0	NO
11. DME	52	m	ps	6	yes	Lt eye	ps	0	NO
12. DME	71	m	ps	6	yes	Lt eye	ps	0	NO
13. BRVO with ME	66	f	ph	5	yes	Lt eye	ph	0	NO
14.Eales with CME	24	m	ph	6	yes	Rt eye	ph	0	NO
15. BRVO with ME	49	m	ph	5	yes	Rt eye	ph	0	NO
16. CNVM	75	f	ph	4	yes	Lt eye	ph	0	NO
17. DME	60	f	ph	4	yes	Lt eye	ph	0	NO
18. CNVM	67	m	ph	6	yes	Lt eye	ph	0	NO
19. DME	78	m	ps	6	yes	Rt eye	ps	0	NO
20. CNVM	59	f	ps	4	yes	Lt eye	ps	0	NO
21.BRVO WITH ME	35	f	ph	4	No	Rt eye	ph	0	NO
22. Post op CME	82	f	ps	5	yes	Lt eye	ps	0	NO
23. DME	55	m	ph	6	yes	Rt eye	ph	0	NO
24. CNVM	69	m	ph	4	yes	Lt eye	ph	1	NO
25. CNVM	62	m	ph	5	yes	Rt eye	ph	0	NO
26. CRVO WITH ME	41	f	ps	6	yes	Lt eye	ps	0	NO
27. DME	53	f	ps	2	yes	Lt eye	ps	0	NO
28. DME	69	m	ph	3	yes	Lt eye	ph	0	NO
29. CME	55	f	ps	4	yes	Lt eye	ps	0	NO
30. CME	64	m	ps	8	yes	Rt eye	ps	0	NO
31. Vasulitis with ME	45	m	ph	4	yes	Lt eye	ph	0	NO
32. DME	59	f	ph	5	yes	Rt eye	ph	0	NO
33. BRVO with ME	74	f	ph	5	yes	Lt eye	ph	0	NO
34. DME	58	f	ps	4	NO	Rt eye	ps	0	NO
35. CNVM	34	m	ph	6	yes	Lt eye	ph	0	NO
36. CRVO WITH ME	57	f	ps	3	NO	Rt eye	ps	0	NO

DISCUSSION

Injections of local anesthetics is painful. It can worsen needle anxiety and cause tissue edema which can distort surgical site. Topical anaesthesia can avoid these all problems and is becoming routine is clinical practice.[6] Topical lignocaine 4% has been tried in the form of drops, gel or pledgets for anaesthesia for various intravitreal injection procedures and have shown variable results. Stinging sensation following topical lignocaine itself causes discomfort for patients and leads to frequent lid squeezing during intravitreal injection procedure. Topical 0.5% proparacaine eye drops have shown very effective and cost-effective anesthesia during office-based intravitreal injections compared to 4% lidocaine solution or 3.5% lidocaine gel.[7] This is the first study which shows beneficial effect of adding soaked pledgets of proparacaine during intravitreal injection procedure.

CONCLUSION

Addition of local application of pledget soaked in proparacaine in patients undergoing intravitreal injection under topical instillation of proparacaine significantly reduces perceived ocular pain during intravitreal injections.

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