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Intraoperative Sub-Tenon's Capsule Injection of Triamcinolone and Ciprofloxacin in a Controlled-Release System for Cataract Surgery.

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Purpose: To compare one intraoperative sub-Tenon's capsule injection of triamcinolone and ciprofloxacin in a biodegradable controlled-release system with conventional prednisolone and ciprofloxacin eye drops to treat ocular inflammation and for infection prophylaxis after cataract surgery. **Design:** Randomized, double-masked, controlled trial. **Participants:** A total of 135 patients undergoing cataract surgery were randomly allocated to two groups: 67 patients treated postoperatively with prednisolone and ciprofloxacin eye drops (prednisolone group) and 68 patients treated at the end of surgery with a sub-Tenon's capsule injection of triamcinolone and ciprofloxacin (triamcinolone group). **Methods:** All patients underwent phacoemulsification and intraocular lens implantation. After surgery, patients in the prednisolone group received 1% prednisolone acetate drops four times daily (week 1), three times daily (week 2), twice daily (week 3), and once daily (week 4) and 0.3% ciprofloxacin drops four times daily (weeks 1 and 2). At the end of surgery, patients in the triamcinolone group received an injection into the sub-Tenon's capsule of 25-mg triamcinolone acetonide and 2-mg ciprofloxacin in biodegradable microspheres. The patients were examined on postoperative days 1, 3, 7, 14, and 28. **Main Outcome Measures:** Postoperative anterior chamber cell and flare, intraocular pressure (IOP), lack of anti-inflammatory response, and presence of infection. **Results:** No significant differences were observed between the groups in anterior chamber cell ($P = 0.14$) and flare ($P = 0.02$) at any postoperative visit. The mean (99% confidence interval) differences in IOP between the prednisolone and triamcinolone groups on days 1, 3, 7, 14, and 28 were -0.4 mmHg (-2.1 to 1.3), 0.0 mmHg (-1.4 to 1.3), 0.0 mmHg (-1.1 to 1.1), -0.2 mmHg (-1.1 to 0.8), and -0.1 mmHg (-1.1 to 0.9), respectively. One patient in each group had unacceptable anti-inflammatory response ($P=1.00$) and required additional medication. No patients had postoperative infection. **Conclusions:** One injection of triamcinolone and sustained-release ciprofloxacin had a therapeutic response and ocular tolerance that was equivalent to conventional eye drops in controlling postoperative inflammation after cataract surgery. Given the inherent advantages of intraoperative sustained-release delivery of steroids and antibiotics, particularly regarding patient compliance and convenience, further consideration should be given to this approach.