LETTER TO THE EDITOR

Sir,

Complications of 5-Fluorouracil after Trabeculectomy

We read with great interest the report by Franks and Hitchings¹ of complications after 5-fluorouracil use in patients judged to be at high risk of failure of trabeculectomy. Subconjunctival 5-fluorouracil was started on the first post-operative day, a total of 50 mg in divided doses being injected over the following 14 days. Although control of intraocular pressure (IOP) >21 mmHg (without additional topical medication) was achieved in 90% of patients, a high complication rate was reported. This report prompted us to review our experience of managing patients with similar risk factors treated by trabeculectomy and 5-fluorouracil injection, where only a single dose of 10 mg 5-fluorouracil was injected into the conjunctival flap at the time of surgery.

Between August 1988 and July 1991, 15 eyes of 12 patients underwent trabeculectomy with 5-fluorouracil injection. Indications for 5-fluorouracil use were: previous filtration surgery (4 eyes), aphakia (4 eyes), uveitis (2 eyes), age <45 years (4 eyes) and pigmentary glaucoma (1 eye). Mean pre-operative IOP was 28.4 mmHg (SD 6.14). No patient underwent simultaneous cataract surgery. Trabeculectomy was performed using a fornix-based conjunctival flap and a triangular limbal-based scleral flap. The scleral flap was closed with a single 8/0 vicryl suture at the flap's apex. Then 10 mg (0.4 ml) 5-fluorouracil was injected into the potential space between Tenon's capsule and conjunctiva. The conjunctival flap was closed with 8/0 vicryl. Complications were choroidal effusion in 2 eyes and bleb dehiscence (requiring resuture) in 1 eye. IOP was not controlled in 2 eyes (one aphakic and one that had undergone previous surgery) both of which subsequently required tube drainage. In the remaining 13 eyes mean IOP at 6 months follow-up was 12.15 mmHg (SD 4.04). Although direct comparisons are difficult, it would appear the results of surgery in our patients were similar to those of Franks and Hitchings but with a much lower complication rate.

The rationale for use of 5-fluorouracil is accepted and its use in glaucoma drainage surgery is increasing. There is, however, concern about the optimum dosage schedule. Ball has reported favourable results injecting a single dose

of 5-fluorouracil directly into the bleb at the time of surgery.² Mitomycin (an antitumour antibiotic with a greater antiproliferative effect than fluorouracil) has been used by a single application of a soaked swab to the sclera per-operatively,³ producing fewer complications than fluorouracil. We believe other surgeons have used 5-fluorouracil in this way with good results. Although reducing the dose of 5-fluorouracil fails to inhibit fibroblast proliferation in experimental rabbits⁴ our results may suggest that this does not necessarily apply to man. We agree with Ball² that the peak concentration of 5-fluorouracil may be of greater relevance than total dose in determining the outcome of drainage surgery.

Divided dose adjunctive 5-fluorouracil therapy has been successfully used in 'uncomplicated glaucoma surgery' (i.e. patients who were not judged to be at high risk of trabeculectomy failure),⁵ although with a post-operative complication rate similar to that reported by Franks and Hitchings.¹ We suggest the lower complication rate of a single 10 mg intrableb injection may make this regime more acceptable as an adjunct to surgery in patients who are not judged to be at high risk of trabeculectomy failure.

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