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LETTER TO THE EDITOR

Subconjunctival injections of 5-fluorouracil for failing Ahmed glaucoma implants

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Dear Editor,

We read with interest the paper by Kaplowitz et al. published in the June issue of the journal [1]. The authors are to be commended for their effort in this topic. We would like to make the following remarks on their article:

Firstly, we would like to bring to their attention a publication by our group that addressed the safety and efficacy of needling combined with 5-fluorouracil (5-FU) injections for failing Ahmed glaucoma implants [2]. As Kaplowitz et al. have not discussed or cited our paper, we believe the readers of the journal would benefit by considering our results here. In our prospective single-group observational study, 36 primary open-angle glaucoma patients with failing Ahmed valves underwent totally 67 needling procedures with concurrent 5-FU injection. The patients were examined 1 week following the needling and then at months 1, 3, and 6 with subsequent visits every 6 months for a minimum period of 2 years. Table 1 presents a summary of our data [2] and data by Kaplowitz et al. for the 5-FU group [1]. Although a direct comparison of the data shown in Table 1 cannot be performed, it seems that needling with 5-FU offers better long-term IOP control than 5-FU injections alone. Of note, our patients were younger than the patients of Kaplowitz et al. [2] and the valve model we used (S2) theoretically induces more fibrosis than the FP-7 model used by Kaplowitz et al. [2]. It is also interesting that almost half as many interventions were performed in our sample compared to the sample of Kaplowitz et al. (1.86 vs. 3.4).

A further comment on the study by Kaplowitz et al. [1] is about their decision to use the "paired Student's *t* test" for the comparison of IOP values between the control and treatment groups. We would have expected that the unpaired, rather than the paired *t* test would have been appropriate for the comparison of data from different patients [3].

Table 1 Summary of data for the study group of the paper by Kaplowitz et al. [1] and the patients analyzed by Quaranta et al. [2]

	Kaplowitz et al. (study group) [1]	Quaranta et al. [2]
Number of eyes	44	36
Mean number of injections	3.4	1.86
Valve model	FP-7	S2
Mean age of participants (years)	63.7	58.3
Months since implantation	4.6 (137 days)	20.1
Pre-needling IOP (mmHg)	25.3	29.5
Success in post-injection months: 12/18/24/60	- / - / - / 77% (defined as IOP <21 mmHg and >20% IOP reduction without reoperation)	75% / 75% /72.2%/ - (defined as IOP ≤18 mmHg with or without medications)
IOP (mmHg) in post-injection months: 12/18/24 (number of medications)	17.9 (2.5) / 18.1 (2.6) /17.0 (2.6)	16.4 (2.2) /15.4 (2.0) / 15.4 (1.9)

IOP intraocular pressure

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Finally, in the paper by Kaplowitz et al. [1] the IOP differences between the 5-FU group and the control group during the follow-up period do not always reach statistical significance. Nonetheless, these differences are certainly clinically relevant (e.g., 12.9 vs. 17.2 mmHg for the control and the study groups, respectively, at the 60-month follow-up visit, $p = 0.23$). We believe that IOP differences of this magnitude (i.e., 4.3 mmHg for the 60-month visit) would surely be considered clinically important. Therefore, the authors' statement that "...the 5-FU-treated group did no worse than controls" is correct in a statistical sense, but not in a clinical sense. As acknowledged by the authors, patient retention was low in their study. It is quite probable that the lack of statistical significance for such clinically important IOP differences is due to the small number of patients remaining at follow-up. Due to the small retention, the Kaplan–Meier survival analysis data should also be interpreted with caution, especially for the last follow-up visits.

We believe that our report [2] and the one by Kaplowitz et al. [1] are contributions to the literature that may prove useful for clinicians treating glaucoma patients with failing Ahmed implants.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflicts of interest.

References

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