

The effect of topical anaesthesia on pharmacological mydriasis in patients screened for diabetic retinopathy.

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Abstract

Purpose: Instillation of topical anaesthetics with or without preservatives in normal persons has been shown to enhance the effect of mydriatic eye drops. The purpose of the present investigation was to study whether a similar effect can be observed in diabetic patients screened for retinopathy and whether the effect depends on the presence of retinopathy.

Methods: Thirty-six patients attending a screening programme for diabetic retinopathy were randomized to receive local anaesthetic eye drops on one eye, followed by instillation of both a sympathomimetic and a parasympatholytic eye drop in both eyes, which was repeated after 20 minutes. The pupil diameter in both eyes was measured with 5 minutes intervals until 35 minutes after the first application of mydriatics, and the responses in the two eyes were compared.

Results: The pupil diameter increased significantly throughout the observation period in both eyes ($p < 0.0001$), and after 10 minutes the effect was significantly higher in the patients who had received topical anaesthesia. The increase in the pupil diameter in this group was significantly higher from 5-10 minutes after the first ($p < 0.003$) and from 0-5 minutes after the second ($p < 0.01$) application of mydriatic eye drops. The patients with retinopathy had significantly ($p < 0.05$) smaller baseline pupil diameter than the patients with no retinopathy, and this difference persisted throughout the experiment.

Conclusions: Topical anaesthesia enhances pharmacological mydriasis in patients during screening for diabetic retinopathy, but pupil size before and after the intervention depends on the presence of retinopathy.

Keywords: Topical anaesthesia, Mydriasis, Screening, Diabetic retinopathy.