Anterior Chamber Depth-Guided Preoperative Acetazolamide for Smooth Phacoemulsification: A Simple Personalized Approach

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Abstract:

Background: A shallow anterior chamber can make phacoemulsification technically challenging and may increase the risk of intraoperative complications. Preoperative acetazolamide can reduce aqueous volume and deepen the anterior chamber, potentially providing better surgical working space.

Aim: To evaluate a simple ACD-guided protocol for preoperative acetazolamide administration to facilitate uncomplicated and smooth phacoemulsification.

Methods: This prospective observational study included 200 consecutive cataract cases undergoing phacoemulsification. Based on preoperative anterior chamber depth (ACD), patients were divided into three groups. Patients with ACD >3.5 mm (n=46) received no acetazolamide. Those with ACD 2.6–3.5 mm (n=125) received one tablet of acetazolamide, while those with ACD <2.6 mm (n=39) received two tablets preoperatively. The objective was to increase ACD before surgery and facilitate a comfortable and uncomplicated surgical procedure.

Results: The ACD-based protocol allowed individualized acetazolamide administration according to the anatomical depth of the anterior chamber. Deeper chambers provided better intraoperative working space, particularly in eyes with initially shallow ACD.

Conclusion: ACD-guided preoperative acetazolamide may be a simple, practical and personalized strategy to deepen the anterior chamber and facilitate smooth, uncomplicated phacoemulsification, particularly in eyes with shallow ACD.