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Supracapsular phacoemulsification versus stop and chop phacoemulsification: Safety and efficacy

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Statement of the problem: There are various descriptive studies on different techniques of supracapsular phacoemulsification that claim to have lesser risk of complications like posterior capsular rent and nucleus drop and increased risk of corneal endothelial damage compared to conventional in the bag techniques of phacoemulsification. But to the best of our knowledge, there is only one comparative study between supracapsular phacoemulsification and in the bag phacoemulsification. Also, the studies do not describe the efficacy, safety and functionality of supracapsular phacoemulsification in different grades of nucleus sclerosis.

Purpose: To compare the safety and efficacy of Maloney's Supracapsular technique with Stop and Chop phacoemulsification in different nucleus sclerosis grades.

Methodology: A prospective randomized interventional study comprising of 153 patients undergoing surgery by two techniques, evaluated for intraoperative phacoemulsification parameters, complications and endothelial cell loss and change in morphology (coefficient of variation and hexagonality).

Findings: Operative time, ultrasound time (41.28 ±19.20s and 88.41 ± 43.24s), cumulative dissipated energy (10.18±5.03 and 24.77±13.09), effective phaco-time, fluid volume, aspiration time and postoperative corneal thickness (on day-1: 575.72 ± 57.7 μ and 605.88 ± 57.49 μ) were significantly higher in stop and chop group. Endothelial cell loss (on day-1: 7.21% and 7.49%) was significant but comparable in two groups. No difference in complication rate. No significant correlation with nucleus hardness was seen with the corneal parameters where as an increase in each phacoemulsification parameter was seen with increase in nuclear hardness, with grade 3 using maximum time and energy.

Conclusion & Significance: Supracapsular technique uses less phaco-energy and time and both techniques are comparable with respect to final visual outcome and complications, including corneal edema and endothelial cell loss.

Biography

Isha Chaudhari is completing her post graduate residency tenure in ophthalmology in University College of Medical Sciences, New Delhi, after giving and passing the final examination. Her interests lie in cataract and oculoplastic surgery. She is learning under the guidance of Professor V. P. Gupta, who specializes in cataract surgeries, oculoplastic, squint and corneal surgeries. He also performs myriad of other surgeries like trabeculectomy, glaucoma drainage devices and dacrocystorhinostomy. He is an avid researcher and has many publications to his name. He is also the Head of Department Ophthalmology and the Principal of the above mentioned college. This research has also been done under his guidance and mentorship.

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