Mekanisk pupillvidgning

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Mekanisk pupillvidgning, en introduktion

Vid kataraktkirurgi begränsar en liten pupill både insynen till linsen och området som är tillgängligt för operationen.

Att genomföra en kirurgisk åtgärd trots en liten pupill ökar risken för synhotande komplikationer som tex ett bakre kapselbrott med nästan 2 gånger.

(Narendran, Jaycock et al 2009)

Mekanisk pupillvidgning, en introduktion

Riskfaktorer för dålig pupillvidgning:

Pseudoexfoliationsyndrom (PXF)

Intraoperative floppy iris syndrome (IFIS)

Tidigare trauma eller kirurgi

Viss glaukombehandling

Mekanisk pupillvidgning, en introduktion

När inte den farmakologiska dilatationen räcker finns det flera tekniker för att mekaniskt vidga pupillen.

Irisdilatator

Irishakar

Malyugin ring

M.fl.

Konsekvenser av mekanisk pupillvidgning

Tidigare studier har visat en ökad postoperativ inflammation efter mekanisk pupillvidgning

I dag är den initiala postoperativa behandlingen oftast lika som vid okomplicerad kataraktkirurgi

Kunskapsläget är fortfarande begränsat ang. konsekvenserna av mekanisk pupillvidgning

Acta Ophthalmologica

Consequences of mechanical pupil dilation, a study based on the Swedish national cataract register

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ABSTRACT.

Purpose: **To describe the outcomes and demographics of patients undergoing mechanical pupil dilation (MPD) during cataract surgery.**

Setting: **All cataract procedures performed in Umea University Hospital and Sunderbyn, Gallivare and Pitea hospitals reported to the Swedish National Cataract Register (NCR) during 2013–2019.**

Design: **Retrospective cohort study based on the Swedish NCR and electronic patient records.**

Methods: **The number of control visits, pre- and postoperative visual acuities, surgical complications/intraoperative difficulties, ocular comorbidities and postoperative treatment regimens were retrieved for all cataract procedures with MPD. For each procedure, the consecutive procedure in the NCR from the same clinic without MPD was chosen to form a control group. A multinominal regression analysis with MPD as the dependent variable was performed to identify factors and outcomes independently associated with MPD.**

Results: **A total of 25 349 patients aged 18–97 years underwent cataract surgery in these hospitals during the study period. Of these, 653 (2.6%) had MPD. Factors such as pseudoexfoliations and capsule staining were over-represented among MPD eyes. As a group, eyes with MPD had more postoperative visits and more postoperative anti-inflammatory drops, and more frequently needed augmentation of the anti-inflammatory treatment at the first postoperative visit.**

Conclusions: **MPD is independently associated with a more complicated intra- and postoperative course with more follow-up visits and requires more anti-inflammatory treatment postoperatively. This information could be added to the postoperative counselling, and more postoperative anti-inflammatory treatment could be considered in cases with MPD.**

Key words: capsular hook – capsular tension ring – cataract – mechanical pupil dilation – phacoemulsification – posterior capsular tear – visual acuity

The authors report no conflict of interest. The authors alone are responsible for the content and writing of the paper.

Acta Ophthalmol.

doi: 10.1111/aos.15041

Introduction

Cataract is the most common reversible cause of visual impairment worldwide (Flaxman et al. 2017), and cataract extraction is the most frequently performed surgical procedure in the western world (Spalton & Koch 2000). In Sweden, approximately 130 000 procedures are being performed yearly, of which >94% are registered in the Swedish National Cataract Register (NCR; Behndig et al. 2019).

Cataract surgery is generally safe and improves the patients' visual function and quality of life, but rare complications do occur. One of the prerequisites for successful surgery is sufficient pupil dilation. A small pupil restricts the surgical field, and almost doubles the risk of sight-threatening complications, such as posterior capsular rupture (PCR) and/or vitreous loss (VL; Narendran, Jaycock et al. 2009). Inadequate pupil dilation can be associated with pseudoexfoliation syndrome (PEX), intraoperative floppy iris syndrome (IFIS), trauma and miotics for glaucoma treatment or previous surgery (Greenberg, Tseng et al. 2011).

When pharmacological dilation of the pupil is insufficient, multiple efficient techniques for mechanical pupil dilation (MPD) are available, including iris retractors, iris hooks, Malyugin rings, among other devices. Each of these techniques might, in itself, add to the surgical trauma (Taipale, Holmstrom et al. 2019). Risk factors and visual outcomes after mechanical pupillary dilation have previously only been described in small cohorts, likely due to the rarity of the intervention. At present in Sweden, the yearly

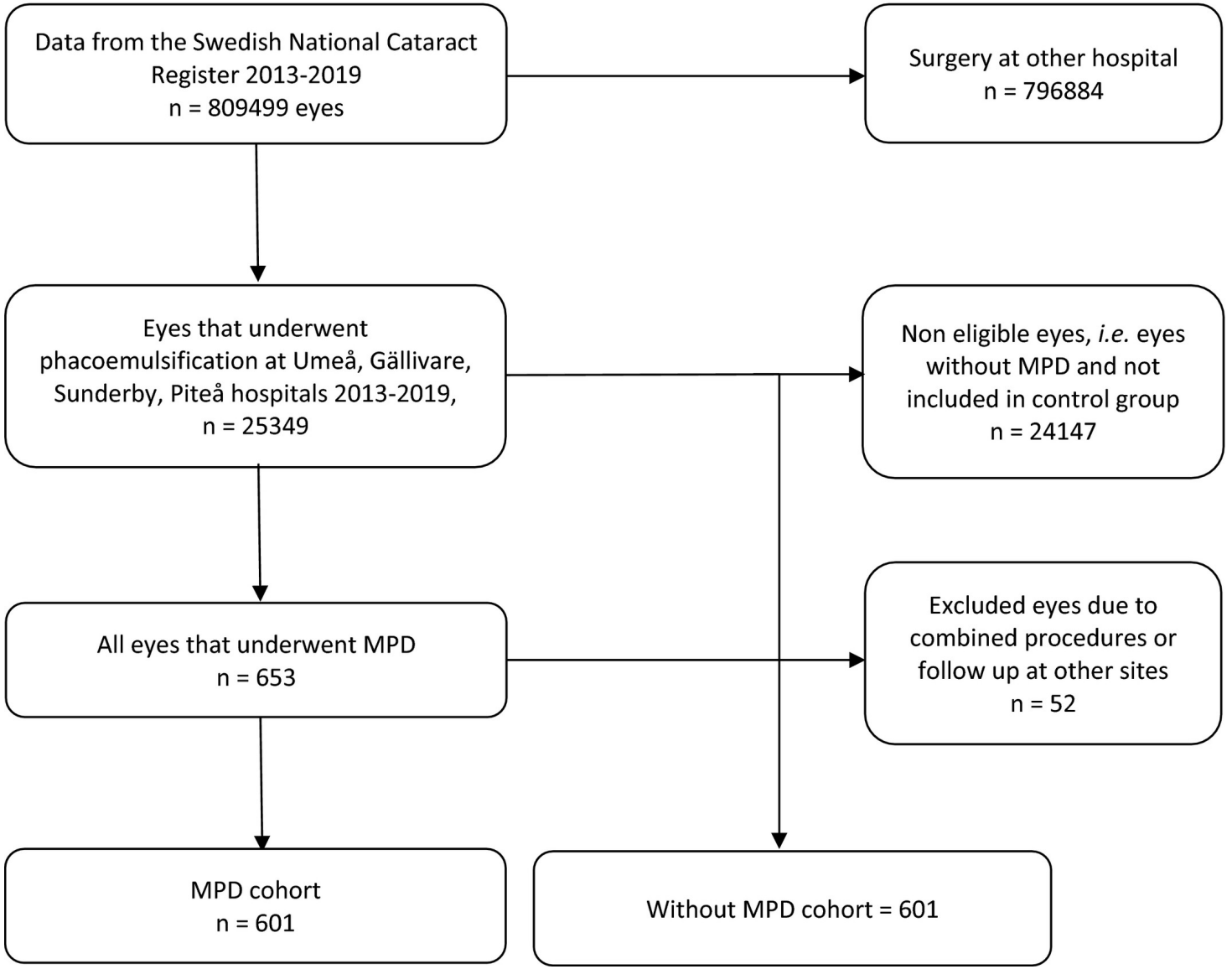
Frågeställningar

1.Resulterar mekanisk pupillvidgning i fler antal postoperativa återbesök?

2. Hur behandlas patienterna postoperativt, och behövs tillägg av ytterligare anti-inflammatorisk behandling vid kontroller?

3. Påverkar mekanisk pupillvidgning synskärpan/slutresultatet?

Studieupplägg (Retrospektiv kohortstudie)



Studieupplägg (Retrospektiv kohortstudie)

- Registerdata
  - Pre-operativa uppgifter
  - Peri-operativa komplikationer
- Validering via patientjournaler
  - Post-operativt förlopp

Pre-operativa skillnader

Mekanisk pupillvidgning (jämfört med kontrollgruppen)

Genomsnitt 4 år äldre

3 gånger högre prevalens av PEX (50 % *vs.* 16%)

2 gånger högre prevalens av Glaukom (19 % *vs.* 9%)

Sämre preoperativ synskärpa (0.13 logMar)

Pre-operativa likheter

Mekanisk pupillvidgning (jämfört med kontrollgruppen)

Kön

Tidigare uveiter

Post-operativt

Mekanisk pupillvidgning (jämfört med kontrollgruppen)

Dubbelt så många postoperativa kontroller (1.68 *vs.* 0.78)

Dubbelt så många patienter med övergående postoperativ hornhinnesvullnad (75 *vs.* 31)

Fler patienter med postoperativ irisatrofi (19 *vs.* 2)

Båda grupperna får liknande ökning i visus efter operationen (0.18 *vs.* 0.12 logMar).

Postoperativ behandling

Mekanisk pupillvidgning (jämfört med kontrollgruppen)

Behandlades oftast som en okomplicerad kataraktoperation på operationsdagen (82% *vs.* 91%)

Men vid uppföljning krävde de i större omfattning tillägg av ytterligare anti-inflammatorisk behandling (15% *vs.* 3%)

Sammanfattning

En liten pupill är en viktig faktor att ta hänsyn till både i den pre-operativa bedömningen och patientrådgivningen, men även för hur vi behandlar patienterna postoperativt.

Mekanisk pupillvidgning är både effektivt och säkert.

Vid mekanisk pupillvidgning såg vi en ökning av både icke planerade återbesök och icke planerade tillägg av anti-inflammatorisk behandling.


Tack!