

Audit of Complications of Topical and Topical-intracameral Anaesthesia for Cataract Surgery

Nazanin Nosrati¹, Reza Moosavi and Tom Eke

Royal Devon and Exeter Hospital, Barrack Road, EX2 5DW, United Kingdom

¹Corresponding author: Nazanin Nosrati, Royal Devon and Exeter Hospital, Barrack Road, EX2 5DW, United Kingdom, E-mail: nazanin.nosrati@nhs.net

Received date: April 16, 2018; Accepted date: May 07, 2018; Published date: May 11, 2018

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To the Editor

Small-incision phacoemulsification surgery techniques mean that cataract surgery can now be carried out in many cases using minimal anaesthesia. Popular techniques are topical anaesthesia (TA, eye-drops alone) and topical-intracameral anaesthesia (ICA, eye-drops supplemented with intracameral non-preserved lidocaine) [1]. Our unit uses TA/ICA for over 98% of cases [2]. Proponents of TA/ICA cite faster and more cost-efficient surgery, and state that TA/ICA should minimize the risks of serious complications of local anaesthesia (LA). Sight-threatening and life-threatening complications of needle-block (retrobulbar, peribulbar) LA include globe perforation, orbital haemorrhage, and brainstem anaesthesia, and these complications have also been reported with sub-Tenon's LA [3]. Potential complications of TA/ICA include corneal toxicity, failure to block the oculo-cardiac reflex, and surgical complications from a 'mobile eye' [4,5]. We are not aware of any large, robust studies that have looked at complication rates of TA/ICA. To address this issue, we audited our practice.

At Norfolk and Norwich University Hospital, we use the Medisoft[®] electronic patient record (EPR) (Medisoft Limited, Leeds, UK), to record all cataract surgeries. This EPR includes mandatory data fields for anaesthesia technique used, any complications of LA (from a drop-down menu of recognized LA complications, including 'none' and 'other') and surgical detail (including surgical complications). The list of potential 'Complications of LA' on the EPR is: none/chemosis/bruising/orbital haemorrhage/penetration or perforation of globe or optic nerve/uncontrolled eye movement/pain (mild, moderate, severe)/systemic problems (bradycardia, hypotension, apnoea)/operation cancelled due to LA complication/subconjunctival haemorrhage/other. Surgeons can set their "anaesthesia" field to a default setting, for example 'TA' or 'ICA'. A software upgrade in 2009 meant that surgeons who had chosen a default LA setting of 'TA' also had their 'complications of anaesthesia' field defaulted to 'None'-therefore, we excluded these surgeons from analysis after this date. Other than this, we looked at records for all cataract surgeries, from 2001 to 2014. The EPR menu has an audit tool called the 'Local Anaesthesia Complications Report'. We used this tool to look at records for all eligible cataract surgeries, checking 'complications' against the original records.

To validate this audit, we also surveyed our colleagues by e-mail. We asked whether they could remember any case(s) of any significant complication of TA/ICA, and whether they had ever encountered a

complication of TA/ICA that meant surgery was not even commenced. We did this because a serious complication of LA (for example, brainstem anaesthesia immediately after a needle block) might lead to surgery being cancelled, hence no 'cataract EPR' would be completed. The clinical audit department of the Norfolk and Norwich University Hospital approved this audit.

We identified 28,747 cataract operations that fulfilled our entry criteria. Our previous audit [2] indicates that over 28,000 cataract operations were done using TA/IC LA.

Ten 'complications of LA' were identified using the audit tool. Only one case was verified as a complication of TA/ICA: a patient suffering discomfort/mild pain after ICA. The other nine cases were excluded: 6 cases used sub-Tenon's anaesthesia (one chemosis, 4 sub-conjunctival haemorrhages, one 'other', not further specified), one doubtful case (eyelid hemorrhage/bruising with TA), and two obvious keystroke errors: a 'globe perforation' with ICA and an 'operation cancelled due to LA complication' with ICA with a record of routine cataract surgery. Twelve surgeons replied to the email survey. Between them, they had contributed 19,053 records to the cataract EPR. None could recall any cases when an operation was not started because of an LA complication, after TA/ICA.

This large study found no significant complications attributable to TA/ICA in cataract surgery. Furthermore, it appears to confirm that TA/ICA has a very low rate of LA-associated complications. We believe that TA/ICA is an excellent LA choice for most cases of cataract surgery.

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