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Clinical Research

Patients' Views on Regional Anesthesia for Elective Unilateral Carotid Endarterectomy—A Prospective Cohort Study

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Background: Carotid endarterectomy (CEA) can be performed under general anesthesia (GA) or locoregional anesthesia (LA). However, the patients' views on the choice between GA and LA are currently poorly understood. We aimed at identifying the preoperative patient information needs, their role in decision-making, and influencing factors associated with LA and anxiety regarding surgery and anesthesia in CEA as a base for improving preoperative consultation and decision-making in the informed consent process.

Methods: Data were collected from consecutive patients undergoing unilateral elective CEA. Data on basic demographics, preoperative information needs, factors influencing decision-making concerning anesthesia technique, a Mini Mental State Examination (MMSE), a Visual Analog Scale (VAS), and the State-Trait Anxiety Inventory (STAI-T/S) were collected.

Results: A total of 59 patients were included in the study, 10 women and 49 men, with a median age of 71 years (interquartile range, 66−77 years). Fifty-four (92%) patients assessed the surgeons' given information as adequate. Older patients (>70 years, $n = 31$) had less self-conception of anxiety compared to younger patients (≤70 years, $n = 28$), 3% vs. 21%, $P = 0.045$. Males expressed less anxiety regarding "waking up during general anesthesia" compared to females (0% vs. 30%, $P < 0.001$). Anxiety about anesthesia and surgery as measured by VAS highly correlated with the STAI-S scores (Pearson correlation coefficient [CC], 0.45; 95% confidence interval [CI], 0.18−0.66, $P < 0.001$; CC, 0.47; 95% CI, 0.27−0.66, $P < 0.001$, respectively). Patients with a lower cognitive function (MMSE ≤27, $n = 20$) had lower needs for preoperative medical information compared to patients with MMSE >27 ($n = 36$), 0% vs. 15%, $P = 0.042$. Two (3%) patients received GA because of their previous bad experience with LA.

Conclusions: Younger and female patients may benefit from a more detailed and reassuring informed consent process. All institutions should use procedure-specific informed consent forms as they appear to be very adequate for the patient information needs. Nearly all patients are willing to undergo LA with the exception of those having had previous bad experience with LA for CEA.

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INTRODUCTION

A severe atherosclerotic stenosis of the internal carotid artery involves a high risk of ipsilateral ischemic stroke. The benefit of carotid endarterectomy (CEA) especially in symptomatic patients of reducing the risk of stroke despite the perioperative risk was shown in large randomized controlled trials.[1–3] CEA may be performed under general anesthesia (GA) or local and/or regional anesthesia (LA). In the past, systematic reviews and meta-analyses comparing CEA under GA as opposed to LA were reported without any significant differences with regards to outcomes, such as risk of stroke or death.[4,5] Furthermore, a large randomized controlled trial of >3,500 patients failed to show a significant difference in outcomes regarding stroke, myocardial infarction, or death.[6] In several centers, surgeons perform CEA under LA because it allows awake testing of the brain function to alert for the need of shunting.[7] Currently, in the absence of evidence, the surgeon and the anesthetist in consultation with the patient decide on the anesthetic technique on an individual basis.[5] However, the patients' views on the choice between GA and LA are currently poorly understood. As a result of various social and political changes, increased patient involvement was shown to be an important part of the quality of health care as it is associated with superior health outcomes.[8]

The purpose of this study was to identify the preoperative patient information needs, the patients' role in decision-making, and factors associated with the choice of LA and anxiety regarding surgery and anesthesia in CEA as a base for improving preoperative consultation and decision-making in the informed consent process.

MATERIALS AND METHODS

Study Design and Settings

This is a prospective cohort study on consecutive patients undergoing CEA under LA at the Departments of Vascular Surgery in Aarau and Basel, Switzerland. Patient recruitment started on July 1, 2004, and ended in June 30, 2007. The study was approved by the Ethics Committee of Beider Basel (Reference Number: EK 97/04).

Participants

Patients eligible for inclusion in our study were adults (>18 years) planned for elective CEA conducted by the 2 chief vascular surgeons (Aarau and Basel, respectively), fluent in German language, and providing written informed consent. They were included on the day of the preoperative consultation. The preoperative consultation was held by the chief vascular surgeon scheduled for the intervention.

Chronologic Structure, Collected Baseline Characteristics, and Study Questionnaire

All data were collected preoperatively, and patients were not followed up postoperatively.

The chronologic structure of the study is shown in Figure 1.

Patients received elaborated information about the study, the intended surgery, and anesthesia in the context of the preoperative consultation some days before the intended procedure by the chief vascular surgeon. The discussion was structured as follows and supported by a commercially available, procedure-specific, and, in Switzerland, widely adopted written informed consent form[9]: First, information about surgery (indication, technique, risk, complications, further treatment) and second, information about anesthesia such as the LA and GA techniques. The patients were given the opportunity for shared decision-making regarding the proposed anesthetic technique (LA versus GA).

On hospitalization for surgery, patients were again informed about the study by the responsible ward physician (resident surgeon). After written informed consent, baseline characteristics were retrieved from the patient records and patients were provided with a questionnaire (Supplementary Material). All ward physicians involved in the study were instructed by oral and written information. Patients were supported and guided in completing the questionnaire by the ward physician. The preoperative visit of the anesthetist took place after the interview and data collection by the ward physician.

Data collection involved basic patient demographics, symptoms, indication for surgery, urgency, grade of carotid artery stenosis, side of the operation, previous carotid surgery, and previous anesthesia.

Patients were asked to fill in the questionnaire regarding their information needs and views on the anesthetic technique. Questions about the extent of a topic (e.g., information given about surgery) were scaled on a 5-point scale (''far too little'', ''rather too little'', ''adequate'', ''rather too much'', ''far too much''). Additionally, a Mini Mental State Examination (MMSE) was carried out.[10] The level of anxiety for the planned operation and anesthesia was determined on a Visual Analog Scale (VAS)[11]