Evidence-based surgery: Dissemination, communication, decision aids
Knops, A.M.

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Chapter 1

General introduction
GENERAL INTRODUCTION

The dilated aorta in my belly was detected coincidentally. This so-called aneurysm was physically not noticeable and the thought of it did not haunt me very often, but the aneurysm appeared to have increased from 51 mm to 54 mm in the last three months. I am now approaching surgical repair. My biggest concern is what would happen if something goes wrong during surgery. I recently established a web store in wines and its loan still has to be paid off. Aneurysm surgery entails considerable risks, and I do not want my wife to be stuck with a debt if complications occur.1

Decades ago, surgeons would have announced this patient that, based on the size of the aneurysm, elective aneurysm surgery is indicated. In their experience the risk of death due to aneurysm rupture increases with aneurysm size.2 The patient would probably undergo surgery without protest. Nowadays, however, other requirements need to be met before elective surgery can be performed.

First, all decisions about medical treatment should ideally be guided by the best available evidence from the scientific literature.3-5 In former days such decisions were often based on either the surgeon’s experience or the extensive knowledge of experienced masters. A second requirement in present-day treatment decision making is to respect patients’ autonomy, accepting that surgeons and patients may differ regarding the value of treatments and treatment outcomes.6 This is in contrast with the rather paternalistic patient approach in earlier days, which emphasized the surgeon’s authority and autonomy.

Dissemination of evidence-based surgery

Evidence-based medicine was introduced in the late 1980s. The term refers to a triad of applying the best available evidence, supplemented or refuted by the physicians’ expertise and patient preferences when making decisions about medical treatment.7 The paradigm was introduced as a strategy to prevent unsafe practices that lack empirical support, to reduce unacceptable variance in care and to ultimately improve efficiency and health care quality.8,9 At first, applying evidence-based medicine was more evident in general medicine than in surgery. This is related to the fact that obtaining high-quality evidence in surgery is more cumbersome than in pharmaco-therapeutical research.10,11

To disseminate the paradigm of evidence-based surgery among future surgeons, skills like searching and critically appraising medical literature are being taught in medical schools and postgraduate education.12,13 Surgical evidence is disseminated by publishing pre-appraised and summarised evidence in medical databases, such as the National Guideline Clearinghouse and BMJ Clinical Evidence.14 Moreover, evidence is being translated and integrated in daily practice by means of developing guidelines and protocols.

Despite these efforts, not all surgeons actually use evidence-based medicine in their daily work. A minority of all surgical treatments were found to be based on evidence
from randomised clinical trials.\textsuperscript{15,16} The growing number of technical abilities and research reports confronts present-day surgeons in clinical practice with the challenge to keep up to date, to disseminate the evidence related to their specialty, and to secure its actual and sustained use.

Communication of evidence to surgical patients

Nowadays, surgeons are expected to make treatment decisions that are not only based on the best available evidence but are also shared with patients.\textsuperscript{17,18} They are legally required to adequately inform patients regarding their state of health and the treatment options available.\textsuperscript{19,20} Patients need to be thoroughly informed by communicating the evidence on treatment options. Subsequently, patient views on benefits, risks, and side-effects of all treatment options can be explored before a final treatment decision is made.\textsuperscript{21}

Especially when the effects of available treatment options are ambiguous or comparable, patient preferences can, and should, play a crucial role in decision making. As expressed in the real-life example mentioned at the beginning of this chapter, abdominal aortic aneurysms are a good example in which patient preferences are essential. These aneurysms are typically asymptomatic but acute rupture is fatal in 80-85 percent.\textsuperscript{22,23} Two treatment options are available: elective surgery (open or endovascular repair) to avoid sudden rupture, or watchful observation, avoiding the risks of surgery. Key issues in this treatment dilemma are the higher risk of rupture in larger aneurysms,\textsuperscript{22,24,25} and the higher surgical risk for patients of advanced age and those with serious vascular co-morbidity. Anxiety levels related to aneurysm rupture risk and the willingness to risk surgical complications may vary widely between patients and need to be incorporated in decision making.\textsuperscript{26} Yet at present factors such as the hospital the patients are in or the physician who treats the patient appear more decisive in treatment decisions, rather than the patient’s preferences regarding treatment options and outcomes.\textsuperscript{27}

Aim and outline of this thesis

The aim of the research reported in this thesis was, first, to explore the current level of dissemination of evidence-based care in surgery and postoperative care. The second aim was to study the communication of evidence regarding treatment options with patients facing surgical treatment or postoperative treatment options, in particular by means of tools known as decision aids.

Improvements in evidence-based practice can only be realized if awareness of evidence-based surgery is secured, and new evidence is actually being disseminated. In chapter 2, the attitude and awareness among surgeons and surgical nurses and the barriers experienced in practicing evidence-based surgery are described.

Guidelines can help to foster evidence-based patient care, but the mere existence of a guideline does not guarantee its actual application and sustained use in daily surgical
practice. In chapter 3 the long-term adherence to two hospital guidelines is assessed and factors accounting for their long-term adherence and non-adherence are explored.

When the evidence of treatment effects is conflicting or ambiguous, it is not straightforward how this should be weighed or combined. Such is the case in (surgical) treatment options that may inflict both benefit and harm. A plain scheme that presents the risk of all possible outcomes as a so-called natural frequency tree could improve understanding for clinicians as well as for patients. We evaluated this in women at intermediate risk stage I endometrial carcinoma who are facing the option of postoperative radiotherapy (chapter 4).

In case of multiple treatment options, decision aids are tools that may help in disseminating evidence-based surgery. They provide evidence-based patient information on the disease, and on the treatment options and their associated benefits, harms, and scientific uncertainties. Chapter 5 presents a systematic review of the effects of decision aids in patients facing a decision about surgical treatment.

In the study reported in chapter 6 we explored if - and, if so, how - surgeons communicate evidence regarding the disorder and treatment options in consultations with patients with an abdominal aortic aneurysm at the outpatient clinic.

A decision aid was developed considering treatment options for patients with an asymptomatic abdominal aortic aneurysm (chapter 7). In a randomised clinical trial, described in chapter 8, the effects of viewing this decision aid in addition to regular information from the surgeon were evaluated in patients newly diagnosed with an asymptomatic abdominal aortic aneurysm.

Decision aids are often considered to be effective if one or more controlled studies have shown that their use lowers scores on the Decisional Conflict Scale, which reflects patients’ decisional conflict regarding treatment options. To those using the DCS it is not always intuitive how to interpret the magnitude of the scores. In chapter 9, associations between Decisional Conflict Scale scores and the likelihood of expressing specific behaviours or emotions by patients are evaluated.

Chapter 10 is a summary of the findings reported in this thesis, in which we also discuss the implications for clinical practice and for further research.
REFERENCES

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