Cost-effectiveness analyses: applications in surgery and cardiology

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Outline
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This thesis focuses on applications of economic evaluations. The aim of this thesis was to gain more insight in costs alongside different studies in surgery and cardiology.

INTRODUCTION

Chapter 1 shows an overview of how to perform costs-analysis in clinical studies. This article was written for an orthopedic journal, but the content applies to other fields as well.

PART A: ECONOMIC EVALUATION IN GASTROINTESTINAL AND VASCULAR SURGERY

This part describes the investigation of selective decontamination of the digestive tract (SDD) in patients with elective gastrointestinal surgery on the occurrence of infectious complications and series of cost-effectiveness analysis in different vascular surgery applications.

Chapter 2 shows a retrospective study of elective gastrointestinal surgery patients receiving SDD versus not receiving SDD.

Chapter 3 shows the clinical outcomes of the randomized controlled trial of SDD versus placebo in patients with elective gastrointestinal surgery (SDD-trial).

Chapter 4 reports the cost-effectiveness analysis alongside this SDD-trial: SDD versus placebo in patients with elective gastrointestinal surgery.

Chapter 5 shows the microbiology outcomes of the SDD-trial: analysis of bacteria obtained from perioperative surveillance rectal cultures and the bacteria cultured from diagnostic wound samples.

Chapter 6 shows a systematic review of randomized clinical trials comparing SDD to placebo in elective gastrointestinal surgery.

Chapter 7 reports a randomized controlled trial of contrast enhanced magnetic resonance angiography (MRA) compared to intra-arterial digital subtraction angiography (DSA) in patients with peripheral artery disease. This article shows the diagnostic outcomes and costs of this trial.

Chapter 8 shows a cost-utility analysis alongside the trial in chapter 10: contrast enhanced magnetic resonance angiography (MRA) compared to intra-arterial digital subtraction angiography (DSA) in patients with peripheral artery disease. Quality of life of these patients was used in this analysis.
Chapter 9 is the cost-utility and cost-effectiveness of the AJA X-trial. In this randomized controlled trial open surgery was compared to minimally invasive endovascular aneurysm repair in patients with a ruptured abdominal aorta aneurysm. The cost-effectiveness and -utility was measured with costs per 30 day or 6-months survivor as outcome parameter.

In chapter 10 we calculated the costs for a consecutive cohort of primary and electively operated patients with an abdominal aorta aneurysm. The aim of this study was to determine the main cost-components in endovascular repair versus open repair and to show the cost-difference between these two components.

PART B: ECONOMIC EVALUATIONS IN INTERVENTION CARDIOLOGY

This part shows the results of the clinical outcome with cost-analysis (EPOS) and cost-analysis (ICTUS) of two cardiologic randomized controlled trials.

Chapter 11 shows the clinical outcomes of a randomized controlled trial comparing same day discharge versus overnight stay in patients with elective percutaneous coronary interventions (PCI) by femoral approach (EPOS-study).

Chapter 12 describes the cost-minimization analysis of the EPOS-trial: comparing same day discharge versus overnight stay in patients with elective PCI by femoral approach.

Chapter 13 reports the costs-analysis of a randomized clinical trial (ICTUS-trial) comparing an early invasive strategy versus selective invasive strategy in patients with non-ST segment elevation acute coronary syndrome.