Surgery Timing

Dataset Introduction

Abstract

This data set contains 32,001 elective general surgical patients. Age, gender, race, BMI, several comorbidities, several surgical risk indices, the surgical timing predictors (hour, day of week, month, moonphase) and the outcomes (30-day mortality and in-hospital complication) are provided. The dataset is cleaned and complete (no missing data except for bmi). There are no outliers or data problems. These are data from a study by Sessler et al. "Operation Timing and 30-Day Mortality After Elective General Surgery". *Anesth Analg* 2011; 113: 1423-8.

Background

It is well established that inadequate sleep, whether from prolonged duty or circadian rhythm disturbances, degrades performance. Because there is no reason to assume that hospital personnel are immune to the performance degrading effects of sleep deprivation, resident work hours are increasingly being restricted to reduce fatigue and the potential for related errors. Even excluding the obvious sleep deprivation associated with overnight work, hospital personnel are likely to become progressively fatigued and work less effectively during the course of a normal workday. Anesthesiologists may be at particular risk because prolonged monitoring is especially impaired by fatigue. It is similarly likely that hospital personnel become progressively fatigued as the normal workweek progresses from Monday to Friday. An additional time-related factor that might influence clinician performance is that most new residents enter teaching hospitals in July and August, and the responsibilities of existing residents often precipitously increase at the same time. Long learning curves associated with anesthesia and surgical procedures may increase risks in the operating rooms during these months and therefore worsen patient outcomes.

Study Objective

This study therefore tested the hypotheses that the risk of 30-day mortality associated with elective general surgery: 1) increases from morning to evening throughout the routine workday; 2) increases from Monday to Friday through the workweek; and 3) is more frequent in July and August than during other months of the year. As a presumed negative control, the investigators also evaluated mortality as a function of the phase of the moon. Secondarily, they evaluated these hypotheses as they pertain to a composite in-hospital morbidity endpoint.

Study Design

Retrospective cohort study

Subjects & Variables

The study included 32,001 elective general surgical patients at the Cleveland Clinic between January 2005 and September 2010. The exposures of interest were analyzed according to the hour of the day (6 am to 7 pm), day of the workweek, month of the year, and moon phase in which the surgery started. The analysis was restricted to elective operations, because urgent or semi-emergent procedures, which are inherently riskier, are often performed later in the workday even without being specifically labeled as "emergencies." Thirty-day mortality was modeled as a binary endpoint adjusting for a risk stratification index based on International Classification of Diseases (9th rev.) codes.

N = 32,001 subjects

25 variables

Additional Information [OPTIONAL]

Citation(s)

Sessler et al. "Operation Timing and 30-Day Mortality After Elective General Surgery". *Anesth Analg* 2011; 113: 1423-8.