

Introduction

- Thrombocytopenia has been associated with increased perioperative mortality and complications
- Thrombocytopenia is associated with chronic liver disease
- Non-alcoholic fatty liver disease (NAFLD) is now the most prevalent liver disorder in Western countries making characterization of morbidity increasingly important
- We used a threshold of 150×10^9 as a surrogate for NAFLD in patients undergoing laparoscopic cholecystectomy to study its effect on mortality and perioperative complications

Methods

- We queried the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database for cholecystectomies occurring from 2005 through 2018.
- Demographic differences between patients with and without thrombocytopenia were evaluated using the t-test or the chi-square test, whereas differences in outcome risk was evaluated using log-binomial regression models.

Table 1

	Thrombocytopenia		Ratio (95% CI)	p
	No	Yes		
Sample Size	407,380	30,250	-	-
30-day Mortality	0.3	1.7	5.3 (4.8-5.9)	<.001
Complication	5.2	12.4	2.4 (2.3-2.5)	<.001
Cardiac	0.2	0.9	3.7 (3.2-4.3)	<.001
Respiratory	0.5	2.2	4.1 (3.8-4.5)	<.001
Thrombotic	0.0	0.0	-	-
Transfusion	0.2	1.2	5.7 (5.0-6.4)	<.001
Renal	0.2	1.0	4.2 (3.7-4.8)	<.001
Return to OR	1.2	2.2	1.9 (1.8-2.1)	<.001
Prolonged Hospitalization	0.1	0.3	2.7 (2.1-3.5)	<.001
Unplanned Readmission	55.0	72.9	1.3 (1.2-1.5)	<.001
Length of Stay				
Same-day Discharge				
Yes	43.4	21.5	0.5 (0.5-0.5)	<.001
No (days)	3.8	5.5	1.5 (1.4-1.5)	<.001

Table 1: Unadjusted outcomes. Note. Data presented as estimated percent or days. Thrombocytopenia defined as pre-operative platelet count less than $150 \times 10^9/L$. The ratios for 30-day Mortality through Unplanned Readmission are risk ratios. For all ratios, a ratio greater than 1 indicates greater unadjusted outcome for patients with thrombocytopenia

Results

- We identified 437,630 patients who underwent cholecystectomy, of whom 6.9% had thrombocytopenia.
- Patients with thrombocytopenia were more often male, older, with chronic disease.
- As shown in Table 1 and Figure 1, patients with thrombocytopenia had higher 30-day mortality rates risk ratio (RR) 5.3 (95% CI: 4.8-5.9) and higher complication rates RR 2.4 (95% CI: 2.3-2.5).
- The most frequent complications included respiratory, need for transfusion, and renal.

Figure 1

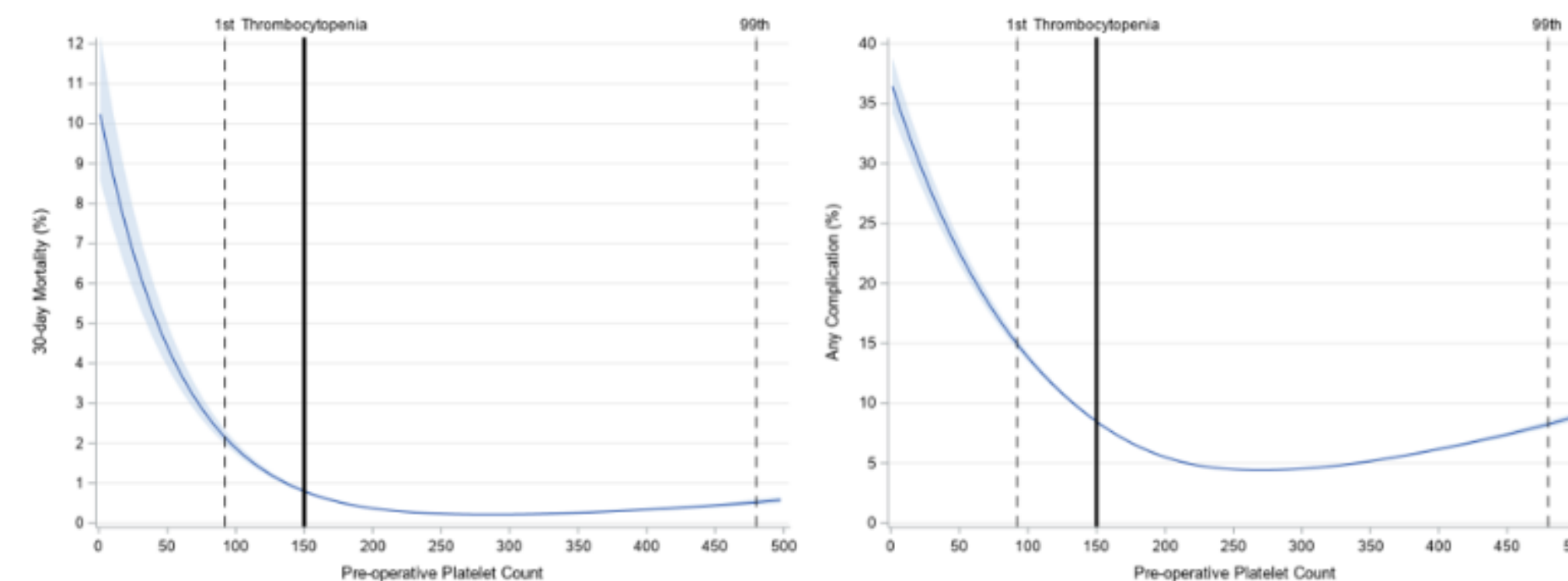


Figure 1. Estimated rate of 30-day Mortality (left) and having any complication (right; infection, cardiac, respiratory, thrombotic, transfusion, renal, and/or unplanned return to the OR) across observed pre-operative platelet counts. Shaded areas represent 95% confidence intervals. The solid vertical line defines thrombocytopenia threshold at $150 \times 10^9/L$. The dashed vertical lines identify the 1st and 99th percentile of pre-operative platelet counts (92 and 480, respectively) indicating that <1% of the pre-operative platelet counts were below 92 or above 480.

Discussion

- Patients with mild thrombocytopenia had higher mortality rates and complications compared to patients with normal platelet counts
- Etiology of mild thrombocytopenia
- Thrombocytopenia for screening patients with NAFLD? (HTN, T2DM) +/-BMI)
- Future use of thrombocytopenia for perioperative risk assessment