

BST 222 Project 2 Milestone

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1 IDENTIFY AN APPLIED PAPER WITH SURVIVAL OUTCOME

The paper which I selected is ***Association of Remnant Liver Ischemia With Early Recurrence and Poor Survival After Liver Resection in Patients With Hepatocellular Carcinoma***

2 IDENTIFY THE PRIMARY QUESTIONS IN THE PAPER AND DEFINE THEM ALONG WITH PRIMARY ENDPOINT (SURVIVAL OUTCOME).

2.1 PRIMARY QUESTIONS

The primary question about this paper is to find out if remnant liver ischemia (RLI) have some disadvantageous influence to the long-term survival and/or abnormal effect on the those patients who have liver resection because hepatocellular carcinoma.

2.2 SURVIVAL OUTCOME

Because remnant liver ischemia (RLI) can be classified as minimal(none or marginal) or severe (partial, segmental, or necrotic). Among 328 samples, there are 98 patients are classified into severe. 63 patients have partial, 16 and 19 patients have segmental or necrotic RLI. The stay time in hospital of those severe patients are longer than patients with minimal RLI. The factors of *preoperative history of transarterial embolization, longer operative time and use of the pringle maneuver* are all independent risk factors for severe RLI. The early recurrence rate in the patients with servere RLI is higher than patients without RLI. Severe RLI was an independent risk factor for overall survival and disease-free survival.

3 DEVELOP AN INITIAL PLAN FOR GENERATING SIMULATED DATA TO MIMIC THE DATA USED IN THE PAPER

Demographic Characteristics.

- **Gender:** Binary variable, 252 patients are male and 76 are female.
- **Age:** Continuous variable, from 26 to 83.
- **Liver Disease:** Binary variable, if has Hepatitis B, 241 patients.
- **RLI:** Category variable, 204 patients exhibit signs of RLI. 106 are marginal, 63 is partial, 16 is segmental and 19 is necrotic.
- **Anatomical hepatectomy:** Binary variable, 208 patients was performed. The incidence of severe RLI was similar between patients who underwent AH or NAH. (29.8% [62 of 208] vs 30.0% [36 of 120]); The incidence of RLI was also similar between patients who underwent major or minor liver resection (33.3% [35 of 105] vs 28.3% [63 of 223]).

Risk Factors for Severe RLI After Hepatectomy.

- **History of transarterial chemoembolization (TACE):** Binary variable.
- **Child-Pugh classification:** Binary variable, B or C.
- **Use of the Pringle maneuver:** Binary variable, if used this operation.
- **Intraoperative transfusion:** Binary variable, if transfuse in operation.
- **Serum albumin level:** Continuous variable
- **Serum alanine aminotransferase level:** Continuous variable.
- **Operative time:** Continuous variable.

Based on the information, we can mimic the data.

4 FOR THE SURVIVAL OUTCOME, DEFINE THE FOLLOWING:

- **Time origin:** The time when participants join in this program and incidentally get liver cancer.
- **Time scale:** month between time origin to death.
- **Event of interest:** Death
- **Mechanism of censoring and/or truncation:** Right censoring for overall surviving. Left truncation for after Anatomical hepatectomy.