

Beyond Kaplan-Meier & Cox: A Competing Risk Approach to Peritonitis in Malaysia

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ABSTRACT

Introduction: Competing risks occur frequently in survival data. Failure to accommodate these events could result in biased estimated probabilities of the event of interests. **Methods:** We conducted a competing risk analysis of peritonitis risk in a cohort of incident peritoneal dialysis (PD) patients (n=1,149) between January 2014 and December 2018. Two analytical approaches were used: cause-specific hazard (Cox proportional hazard, CPH) model to identify covariate effects on the rate of peritonitis on patients who were still event-free; sub distribution hazard (Fine & Gray, FG) to estimate the effects of covariates on the probability of peritonitis over time. To avoid overfitting the FG model, we used Bayesian information criterion (BIC) to select the most parsimonious model. **Results:** CPH regression suggested that older age (HR: 1.42; 95% CI: 1.13-1.78), partial assistance to perform PD (HR: 1.37; 95% CI: 1.04-1.80), and FMC brand product (HR: 1.69; 95% CI 1.38-2.06) increased the rate of peritonitis in naive patients. FG model suggested that FMC brand product had increased the probability of peritonitis over time (HR: 1.71; 95% CI: 1.40-2.09). **Conclusion:** When competing risks were present, it was incorrect to use the CPH to infer the association of covariates on the cumulative incident of peritonitis on the entire cohort. We were limited to quantifying the association between old age, Continuous Ambulatory Peritoneal Dialysis (CAPD) assistance, and FMC product to increase rate of peritonitis in patients who were still event-free. In turn, the FG model suggested that FMC product was the most important covariate in increasing the cumulative incident (i.e., probability) of peritonitis in Malaysian PD patients.

Melioidosis in Pahang: A Review from Registry Data 2011-2015

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ABSTRACT

Introduction: A review of melioidosis cases conducted throughout the state of Pahang, Malaysia, from 2000 to 2004 found that there were high annual incidences and mortality rates. A series of programs on medical education has since been introduced throughout Pahang, and a registry was created to track the effects. **Methods:** A comprehensive review of the confirmed melioidosis cases from 1st January 2011 to 31st December 2015 was performed to trace back the culture findings from all microbiology laboratories in Pahang. Comparisons were made between these cases and previous records retrieved from the registry. Information was verified from the patient's case note when necessary. Completed data were analysed. **Results:** A total of 239 patients had positive cultures for *Burkholderia pseudomallei* from the total cases of 249 melioidosis cases. The calculated melioidosis incidence in Pahang, was 2.89 per 100,000 population every year (4.18 per 100,000 adult population annually and 0.8 per 100,000 pediatric population annually). The positive patients were predominantly males (78.7%), Malays (82.7%), and had a median age of 52 years (range 1 -84 years). The most common predisposing factor and clinical presentation were diabetes (n=171, 69%) and pneumonia (n=112, 45.0%) respectively. With the known outcomes, 106(48.4%) of them did not survive, and while the other 113(51.6%) were fully discharged and received appropriate antibiotics for both intensive and eradication therapies. Twenty-two patients (8.9%) had culture-confirmed relapses. **Conclusion:** Despite improvements in patient management, especially in the treatment involving antibiotics, mortality rates remained high. A concerted effort must be made to formulate a better strategy to reduce the mortality rate of melioidosis.