

The determinants and prognostic factors of 5-year survival of childhood leukaemia in Malaysia

ABSTRACT

Introduction: Leukaemia is the fourth leading cause of death among children aged 0 to 14. This study aimed to determine the prognostic factors of death in childhood leukaemia in Malaysia.

Methods: A retrospective cohort study was conducted for all childhood leukaemia patients aged 0 to 19 years diagnosed between 2010 and 2014 using data from the Malaysian National Cancer Registry database. Death dates were updated until 31st December 2019. The Cox proportional hazard model was used to determine the prognostic factors and hazard ratios.

Results: Among the 1,212 children with leukaemia, females had a 19% (HR: 0.81, 95% CI: 0.68, 0.96) reduced risk of death than males. Meanwhile, patients aged less than one year, or between 10-14 and 15-19 years old reported adjusted hazard ratios of 1.7 ($p < 0.05$), 1.7 ($p < 0.001$), and 2.2 ($p < 0.001$), respectively, when compared with patients aged 1-4 years old. Malay children with leukaemia had a 33% (HR: 1.33, 95% CI: 1.05, 1.68) higher risk of mortality than the Chinese. Patients with Mature B-cell (1a2) subtypes, acute myeloid leukaemia (AML) (1b) subtypes, and "unspecified and other" leukaemia (1e) subtypes showed 1.6 ($p < 0.05$), 1.5 ($p < 0.001$), and 1.6 ($p < 0.001$) times the risk of death as compared to acute lymphoid leukaemia (ALL) (1a1) subtypes.

Conclusion: Sex, age, ethnicity, and leukaemia subtypes were the four prognostic factors of mortality among pediatric patients. Early detection and treatment may improve childhood leukaemia survival.