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Comparison of Parametric competing risk Models for Determining Survival of Patients With colorectal Cancer

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Abstract

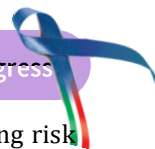
Introduction & Aim: Colorectal cancer (CRC) is the third most prevalent cancer worldwide. The increasing incidence of colorectal cancer (CRC) in the past three decades in Iran has made it a major public health burden. The purpose of this study was to compare parametric competing risk and Cox models as well as to determine demographic and pathological factors affecting the survival of patients with colorectal cancer.

Methods: Data recorded from 854 patients with colorectal cancer who registered in Institute for Gastroenterology and Liver Diseases, Shahid Beheshti University of Medical Sciences (Tehran, Iran) from 2004 to 2015 in a retrospective study. Analysis was performed using competing risks model and based on the parametric models. Software used for data analysis was R, and significance level was regarded as 0.05.

Results: The result indicated that, at the end of follow-up, 325 (38.1%) death was from colorectal cancer and 100 (11.7%) death was due to other diseases and 429 patients (50.2%) survived till the end of the study. The mean survival time for a patient in 854 was 40.38 ± 30.4 month with median equals 30 months. According to competing-risks method, only age at diagnosis, body mass index and family history have a significant effect on patient's survival time.



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Conclusion: Although the Hazard Ratio in Cox model and parametric competing risk ones are approximately similar, according to Akaike Information Criterion, the Weibull model is the more appropriate for survival analysis.

Key words: Survival analysis - competing-risk - colorectal cancer - parametric model