APPLICATION OF BUCKLEY-JAMES METHOD AS AN ALTERNATIVE TO COX MODEL IN VIOLATION OF PROPORTIONAL RISK ASSUMPTION

Rogério Antonio de OLIVEIRA[1]
Giovanni Faria SILVA[2]
Liciana Vaz de Arruda SILVEIRA[3]

- *ABSTRACT: The Buckley-James' method (BJ) has no assumptions about the error distribution of the linear regression model. That model can be an alternative to semi-parametric Cox model, when the proportional hazard assumption is not satisfied. For instance, consider the patients' lifetime after a surgical procedure for treating the esophageal variances from a progressive complication of cirrhosis. The lifetimes were observed to death during follow-up of 94 patients. Therefore, patients have not died until the ending of the follow-up were considered as censorship. The patients covariates as degree cirrhosis (Child-Pugh = 1, 2 or 3), use of β-blocker medication and patient age were studied to evaluate their effects in the survival time model. As those covariates presented no proportional hazards, so the Cox model could not be adjusted. In that case, the Buckley-James linear regression model can be useful to analyze data censored lifetimes. The covariate p values of age = Child 1, Child = 2 and 1 = β-blocker were respectively equal to 0.051; 0.002; 0.056 and 0.023. The BJ model is an extension of the classic linear models for censored data and it has good statistical properties under certain conditions of regularity.*

- *KEYWORDS: Survival analysis; regression model for censored data; no proportional hazards.*

[1] Universidade Estadual Paulista "Júlio de Mesquita Filho" - UNESP, Instituto de Biociências, Departamento de Bioestatística, Caixa Postal 510, CEP: 18618-970, Botucatu, SP, Brasil. E-mail: *rogerio@ibb.unesp.br*
[2]Universidade Estadual Paulista "Júlio de Mesquita Filho" - UNESP, Faculdade de Medicina de Botucatu, Departamento de Clínica Médica, Caixa Postal 584, CEP: 18618-970, Botucatu, SP, Brasil. E-mail: *giovanni@fmb.unesp.br*
[3] Universidade Estadual Paulista "Júlio de Mesquita Filho" - UNESP, Instituto de Biociências, Departamento de Bioestatística, Caixa Postal 510, CEP: 18618-970, Botucatu, SP, Brasil. E-mail: *liciana@ibb.unesp.br*