The Relationship between Stroke Mortality and Red Blood Cell Parameters

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Abstract:

Several factors influence on the outcome of ischemic stroke. The aim of this study was determination the relationship between stroke mortality and red blood cell parameters. This cross-sectional study was conducted from 2011 July to June 2012. For all patients with ischemic stroke in middle cerebral artery (MCA) territory, the cell blood count test was performed. We recorded their mortality on the 1(st) weeks and the 1(st) months after ischemic stroke. Data analysis was performed using t-test, χ(2), Mann-Whitney U-test, logistic regression and receiver operating characteristic curve in SPSS for Windows 19.0. A total of 98 subjects (45.9% men and 54.1% women) with the mean age of 71.0 ± 13.9 years were assessed, while 67.3% of them were anemic. The prevalence of 1(st) week mortality among anemic and non-anemic patients was 40.9% and 34.4% (P = 0.534). The prevalence of mortality after 1(st) week till 1(st) month was 19.6% and 21.0% respectively (P = 0.636). In univariate analysis, only 1(st) month mortality had a significant relationship with red blood cell (RBC) count (P = 0.022). However, the result of logistic regression model showed that RBC (P = 0.012) and mean corpuscular volume (MCV) (P = 0.021) remained as predictors of the 1(st) week and the 1(st) month mortality (P = 0.011 and P = 0.090 respectively). The best cutoff point of RBC for the prediction of the 1(st) week mortality with 44.7% specificity and 69.5% sensitivity was estimated 4.07 million/μl and for the 1(st) month mortality with 46.6% specificity and 72.2% sensitivity was estimated 4.16 million/μl. The RBC count and MCV are independent predictors of ischemic stroke short-term mortality.

Keywords: Anemia; Mortality; Stroke