ISBN 978-624-6150-43-3
Conference Proceedings of 2nd International Research Conference on Healthy Delights -ஆரோக்கியம்-2024
OP-ID 14

Predicting maximum duration of factor VIII replacement therapy efficiency using activated partial thromboplastin time test in Hemophilia A patients at the National Hospital of Sri Lanka

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Hemophilia A is a common hereditary coagulation disorder characterized by a deficiency in clotting factor VIII. Factor VIII replacement therapy is the primary treatment, focusing on maintaining a baseline factor VIII level to proactively prevent bleeding episodes. The aim of the study was to establish an association between aPTTand the time from the latest factor VIII treatment to the collection of blood (TD) to predict the maximum time that could maintain the efficiency of factor VIII replacement therapy using aPTT. Patients attending the Hemophilia clinic, National Hospital of Sri Lanka, were selected for the study (n=61). TD and the latest factor VIII therapy dose taken were obtained from the records. aPTT were performed using coagulation analyzer Coatron-M4 (Licon, S.A.). The data was analyzed using Microsoft Excel IBM_SPSS_version_26. In the first step, correlation bivariate analysis was performed to establish an association between aPTT and TD. Then, Kaplan-Meier survival analysis was performed to find out the maximum days of recurrences after the latest factor VIII administration dose. aPTT showed a significantstrong positive correlation with TD (r=0.820; p=0.000). The Kaplan–Meier survival analysis estimated the median survival time is about 5 days with an initial recurrence of about 2 days, complete recurrence of about 8 days. Results showed that the optimal time that could maintain the efficiency of factor VIII replacement therapy could be predicted using the aPTT in Hemophilia A patients. Thereby, instead of relying on factor assay, a simple aPTT test could be used to monitor the prophylaxis therapy by avoiding frequent testing of factor levels using factor assays to monitor recurrence. However, these findings should be validated by performing the same process with the increased number of Hemophilia A patients.

Keywords: *Hemophilia A, Activated partial thromboplastin time test, ProphylaxisFactor VIII replacement therapy, Kaplan-Meier survival analysis*