ABSTRACT

A complete blood test is a preliminary examination of blood cell components often maintained in the laboratory. Errors often occur in the laboratory in the pre-analytical stage, one of which is sample handling. The storage of samples at a specific temperature and time will affect changes in the number, size, and shape of cells so that the examination results become inaccurate. This study aims to determine the effect of the storage time of EDTA blood samples at room and refrigerator temperature on the complete blood count parameters.

This research was conducted at the Farmalab Clinical Laboratory in Bangkalan. The type of research used is an experiment with a post-test and control design. The number of samples used is nine, determined based on the purposive sampling method.

Based on a statistical analysis of the One-Way ANOVA and Kruskal-Wallis tests, the examination of EDTA blood samples stored at room temperature showed no effect for up to 7 days of storage on the parameters of erythrocytes, leukocytes, platelets, and haemoglobin. At the same time, storage at refrigerator temperature does not show any influence until 7 days of storage on the parameters of erythrocytes, haemoglobin, and hematocrit. Moreover, the room temperature storage influences hematocrit levels starting from 3 days of storage. The temperature storage of the refrigerator shows the influence of the number of leukocytes at all storage times as well as the number of platelets from 3 days of storage. All parameters of the complete blood test showed stable results for 1 day at room temperature storage (18−24°C). The longer sample storage time, the more inaccurate the test results.

Keywords: EDTA blood sample, sample storage, Complete Blood Count (CBC)