

Effect of Giemsa Buffer pH Concentration on Leukocyte Morphology In Bone Marrow Preparations

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ABSTRACT

Bone marrow preparations can be stained using Giemsa staining diluted with the right buffer pH. However, in the conditions of data collection in the field, Giemsa staining technique is often done without paying attention to the buffer pH accuracy. Buffer pH should be used is in pH 6.8 (Neutral) with a balanced base acid. Buffer pH less than 6.8 results in a purple leukocyte chromatin core that is supposed to be purple only partially formed in the center of the nucleus and some are red. Buffer pH more than 6.8 results in too much leukocyte absorbing methylen blue so the cytoplasm gets thicker and the granules gets darker. The purpose of this study was to determine the effect of Giemsa buffer pH concentration on leukocyte morphology on bone marrow preparation. The type of this research was an experimental with samples taken as many as 9 people leukemia patients using Accidental Sampling Method. Microscopic observation of bone marrow preparation diluted with 5.8 buffer pH concentration i.e. 20% preparation with good criterion and 80% preparation with poor criterion, 6.8 buffer pH concentration i.e. 92% preparation with good criterion and 2% preparation with less good criterion, 7.8 buffer pH concentration i.e. 13% preparation with good criterion and 87% preparation with less good criterion. ANOVA statistical test showed the value of p-value = 0.000 < 0.05. The conclusion that there was a significant difference between the effect of Giemsa buffer pH concentration on leukocyte morphology on bone marrow preparation.

Keywords: leukocyte morphology, Giemsa buffer pH, bone marrow preparation