

Comparing Quality of Staining, Cost and Turnaround Time of Conventional Leishman and May Grunwald Giemsa Method with a Newly Modified Giemsa Method in Bone Marrow Staining of Acute Leukaemia

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Morphology is the cornerstone of diagnosis of hematological malignancies where quality of staining is vital. Hyper cellularity of smears interferes with staining. A Newly Modified Giemsa (NMG) method as a routine method for hypercellular bone marrow smears was compared over the conventional Leishman method and the May Grunwald Giemsa method (MGG) in a study during April to July 2017.

Our General objective was to compare the quality of staining, cost and turnaround time of conventional Leishman and May Grunwald Giemsa method in bone marrow staining of acute Leukaemia.

Quality of staining, cost and turnaround time of NMG method was compared with MGG and Leishman methods for bone marrow smears of acute leukaemia using 30 cases. Smears were blindly reviewed for the degree of staining of nuclei, cytoplasm and granules on a scale of 0 to 4 (Quality scores 0,1,4–poor,2-good,3-excellent) and statistically analyzed by Minitab 16.

A significant difference ($p < 0.001$) was revealed for staining quality of nuclei (NMG-2.3, Leishman-2.0 and MGG-1.6), cytoplasm (NMG-2.3, Leishman-1.5 and MGG-1.6), and granules (NMG-2.1, Leishman-1.8 and MGG-1.5). Cost of staining was lowest in NMG (NMG Rs-2.00, Leishman-Rs. 2.71, MGG-Rs.2.95 per smear, NMG was 26% less than Leishman and 32% less than MGG). Staining time of NMG was 76% less than MGG and 9% greater than the Leishman method. Time duration of MGG, NMG and Leishman methods were 50, 12 and 11 minutes, respectively.

Staining quality for nuclei, cytoplasm and granules of the NMG was superior to MGG and Leishman methods and NMG was the most cost-effective method. NMG method consumed minimum time.

Key words: *Bone marrow, Giemsa, Hypercellular, Low cost, Staining*