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Abstract

Accurate diagnosis and classification of leprosy patients into multibacillary (MB) and paucibacillary (PB) groups is critical in deciding the treatment regime for leprosy. Many leprosy endemic countries classify patients into MB and PB groups using clinical classification systems alone. However, bacteriological classification based on calculation of BI in slit skin smears (SSS) is superior in terms of specificity. SSS procedures are more costly and are usually practiced under poor laboratory conditions leading to inaccurate results.

This dissertation investigates the usefulness of SSS in diagnosis and classification of leprosy over clinical classification systems. An audit of the SSS procedures at Central Leprosy Clinic (CLC) laboratory of Sri Lanka is also included in this report alone with the appropriate recommendations.

Hundred newly diagnosed, untreated leprosy patients participated in the study. All patients were initially clinically examined and classified using three different clinical classification systems. Then SSS were taken from six sites of each of them and following staining and microscopy, average Bacteriological index (BI) was calculated. Depending on the average BI, patients were classified in to PB and MB groups according to Ridley Jopling classification. The clinical classifications of the study group were compared with bacteriological classification. In WHO clinical classification system, unconfirmed MB rate and unconfirmed PB rate were found to be 58.3% and 4.7% respectively. Misclassified MB rate was 16.7% and misclassified PB rate was 25.6%.

BI calculated by the author was compared with that of the actual practice by the medical laboratory technician (MLT) in order to determine the intra-laboratory variation of SSS results considering author as the reference standard. The study revealed that for 61% of the cases there was no variation of BI. In 77% of the study

group, BI has shown either no variation or variation within ± 1. According to Rijik, et al, (1985) the findings indicate that the calculated BI in actual practice is reliable.

Audit on SSS procedure carried out for twenty five randomly selected patients, revealed that site selection was not accurate in 92% of instances. Furthermore gloves were used only in 84% of the time for specimen collection. Appropriate wound dressing was done only in 8% of the time. Handling of the blood spillages was always (100%) incorrect. Labelling and storage of the specimens were correct only in 60% and 54% of the instances respectively. Technique of SSS collection, fixation and use of disposable surgical blades were accurate in all instances. Regarding staining, adequate amount of clinical material was found only in 48% of the smears.; It was well distributed in 88% of the slides. In 20% of the slides blood that can interfere with reading was present. The steps of the staining technique were followed correctly for all the slides (100%). In 96% of the slides decolorisation was adequate. Fresh and good quality staining reagents were used for 8% of the slides only. When the smears were read, correct technique of reading was used for all slides (100%). The required number of microscopic fields was examined for 28% of the slides only.