



TROPICAL DERMATOLOGY

## GENOMIC REDUCTION AT TTC REPEATS IN THE BACTERIAL GENOME OF TREATED CASES OF HANSEN'S DISEASE: A POSSIBLE SURVIVAL MECHANISM OF MYCOBACTERIUM LEPRAE

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**Introduction:** We have shown earlier, that the changes in TTC tandem repeats, in *M. leprae* genome, may contribute to the restriction of the pathogenicity of the bacterium and their survival strategy in cases of pure neural Hansen disease. We suspect, that a similar genomic reduction if happens in treated cases of Hansen disease, can be a determining factor for developing persisters and relapse.

**Objective:** The present study aims to find out if there is any evidence of genomic reduction in treated cases of Hansen disease that shows microbiological non-response.

**Materials and Methods:** Skin biopsies were taken from treated cases of Hansen disease who have BI unchanged or increased compared to their pre-treatment BI. Analysis for the mutation in *rpoB* gene and *folp1* gene were done to rule out drug resistance. The entire TTC repeat region of the bacteria was amplified by PCR and was subjected to sequencing. The obtained sequences were then analyzed by CLUSTALW.

**Results:** A total of 127 patients were included in the study of which 52 had BI unchanged and 75 had an increase in BI, even after 6 months of completion of MDT. Among the samples, 2 had positive *rpoB* gene mutation. No mutation was found in the *folp1* gene. The TTC repeat of the both *rpoB* resistant samples were found to have 17 copies, which matched their pretreatment copy number. In other 125 cases, 60 cases showed no change from their pre-treatment TTC number. Of those 65 samples that showed evidence of genomic reduction; 11 samples showed one copy, 41 showed 2 copies and 13 showed 3 copies deletions.

**Conclusion:** We conclude that there is evidence of genomic reduction, which may lead to microbiological non-response in treated cases of Hansen disease. This signifies a possibility of future persistence and relapse.

