

ABSTRACT

**CORRELATION BETWEEN SENSORINEURAL HEARING LOSS WITH
SYSTEMIC LUPUS ERYTHEMATOSUS PREVALENCE
WITHOUT HEARING SYMPTOM**

Betty Ariyanti

Objectives : *Systemic lupus erythematosus* (SLE) is considered a prototype of autoimmune diseases because of its multiorgan involvement. Pathogenic immune complexes and autoantibodies are the main causes of organ damage. Recent studies have also shown involvement of the inner ear. Autoimmunity and vascular microtrombosis of the inner ear contribute to hearing loss in SLE. Patients with SLE have significantly higher hearing thresholds with *sensorineural hearing loss* (SNHL), bilateral, symmetric, and at high frequency. Evaluation of auditory dysfunction on SLE patients have rarely been reported in the literature based on pure tone audiometry and DPOAE. The aim of this study was to prove the correlation between sensorineural hearing loss with SLE prevalence without hearing symptom based on pure tone audiometry and DPOAE examination.

Methods : This study was conducted in the Rheumatology division of Internal Outpatients Departement of Dr. Soetomo general hospital Surabaya and Neurotology division of ORL-HNS Dr. Soetomo general hospital Surabaya. This study was included in observational analytic research with cross sectional study design using control group. The age and sex of the control sample were matched to the matched sample. Samples were taken by consecutive sampling. All samples were analyzed descriptively to get basic research data. Stastic analysis to determine hearing loss based on pure tone audiometry and DPOAE examination in SLE patients using T-independent and Mann-Whitney test, and Chi-Square.

Result : There were 30 samples (15 cases and 15 controls) that met the study criteria. The sample age range is 15 - 52 years, with an average age of 29.33 years. Ratio between men and women 1 : 14. SLE group without hearing symptom mostly (73.3%) did not get tinnitus and vertigo. The PTA result showed no significant statistical difference from the control ($p = 0.851$). A significant difference was found at a frequency of 4000 Hz ($p = 0.021$), 6000 Hz ($p = 0.001$), and 8000 Hz ($p = 0.002$). The results of DPOAE examination in the SLE group were found as many as 10 patients (66.7%) result of refer and 5 patient (33.3%) result pass. There was a significantly difference from the control ($p = 0.027$).

Conclusion : 1) There was a correlation between sensorineural hearing loss based on pure tone audiometry examination with SLE prevalence without hearing symptom at frequency 4000 Hz, 6000 Hz, and 8000 Hz; 2) There was a correlation between cochlear dysfunction based on DPOAE examination with SLE prevalence without hearing symptom at frequency 8000 Hz and 10000 Hz.

Keywords : SNHL, SLE prevalence without hearing symptom, pure tone audiometry, DPOAE.