

# Correlation Between Age And Duration Of Illness And Level Of Selenium In Batakese Male With Schizophrenia

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**Abstract-** World Health Organization (WHO) noted schizophrenia as one out of 10 disability leading diseases contributing to global burden of disease. It's exact aetiologies are still elucidated, but recent studies have revealed that schizophrenia may be related to oxidative stress. Selenium, a known oxidative stress factor, consists of two forms; non-organic selenium (selenate), and organic selenium (selenomethionine, selenosistein) which can be obtained from dietary intake. In this present study, we measured serum level of selenium from 50 Batakese male with schizophrenia. Measurement was conducted by using inductively coupled plasma mass spectrometry (ICP-MS). We found that age and duration of illness are related to serum level of selenium ( $p = 0.048$ ,  $r = -0.281$  for age, and  $p = 0.039$ ,  $r = -0.293$  for duration of illness). Serum level of selenium was not associated with positive and negative symptom scale in Batakese male with schizophrenia.

**Index Terms-** Selenium, Schizophrenia, Male

## I. INTRODUCTION

World Health Organization (WHO) noted schizophrenia as one out of 10 disability leading diseases contributing to global burden of disease.<sup>1</sup> Schizophrenia affects approximately 24 million individuals and one out of 300 individuals may develop schizophrenia over the course of their life. Onset of schizophrenia most often occurs during teenagerhood and is usually earlier in male.<sup>2</sup> Schizophrenia is known as multifactorial disease whose exact aetiology is still elucidated. Recent studies indicated that schizophrenia may be related to oxidative stress.<sup>4</sup> Oxidative stress may be caused by selenium, a substance known with atomic number 34 on periodic table. Selenium is essential mineral in the body which consists of two forms; non-organic selenium (selenate), and organic selenium (selenomethionine, selenosistein) which can be obtained from dietary intake.<sup>5,6</sup> Several studies indicated that selenium is associated with schizophrenia in which selenium serves as contributing factor. Selenium is known to decrease antioxidant activity which plays a role in decreased neuroprotection mechanism related to dopamine turnover and cognitive decline in the long run.<sup>7</sup> Thus, this present

study is to investigate serum level of selenium in Batakese male with schizophrenia.

## II. METHOD

This cross-sectional study was conducted in order to investigate the correlation of serum level of selenium in Batakese male with schizophrenia. 50 Batakese male with schizophrenia participated in this study. Sample was obtained consecutively and ICP-MS was used to measure the serum level of selenium.

## RESULT

Table 1 shows participant characteristics. Most of our participants were in the age group of 20-30 years of age (52%) and in average participants have been living with schizophrenia for  $5.48 \pm 2.82$  years with PANSS score of  $58.75 \pm 8.83$

**Table 1.** Characteristics of Batakese male with schizophrenia participating in the study

| Characteristics     | Mean $\pm$ SD    | n  | (%)  |
|---------------------|------------------|----|------|
| Age                 |                  |    |      |
| 20-30               |                  | 27 | (54) |
| 31-40               |                  | 23 | (46) |
| Duration of illness | 5.48 $\pm$ 2.82  |    |      |
| PANSS Score         | 58.75 $\pm$ 8.83 |    |      |

We found that age and duration of illness were related to serum level of selenium ( $p = 0.048$ ,  $r = -0.281$  for age, and  $p = 0.039$ ,  $r = -0.293$  for duration of illness). In the other hand PANSS score was not associated with selenium level.

**Table 2.** Correlation of age, duration of illness, and PANSS with selenium level

| Variabel | n  | p                          |
|----------|----|----------------------------|
| Age      | 50 | $p = 0.048$<br>$p = 0.039$ |

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Duration of  
illness

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### III. DISCUSSION

We found that age and duration of illness is negatively correlated with selenium serum level. This indicates that the higher level of selenium in the serum is related to younger age and earlier stage of the disease. This is in line with several other studies which also indicated selenium as contributing risk factor.<sup>8-10</sup> Our study did not find any relationship of serum level of selenium with PANSS score in Batakese male with schizophrenia.

### IV. CONCLUSION

Selenium serves as contributing risk factor in schizophrenia. Age and duration of illness is negatively correlated with selenium level, indicating that higher selenium level is related to much earlier development of the disease.

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