ABSTRACT

Title of Abstract : Serum Cholinesterase Levels And Their Correlation With Body Composition Measured By Bioelectrical Impedance Analysis (BIA)
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Background : Pesticide exposure has harmful effects on farmers, especially spraying farmers. All of pesticide classes such as organophosphates, carbamates, pyrethroids and organochlorines can have a disruptive effect on metabolism and energy storage. One of the bioindicators that can be used to identify farmers exposed to pesticides is AChE. Abnormal AChE levels stimulate nicotinic and muscarinic receptors in various organs, causing a wide range of metabolic disorders including adipose tissue dysfunction, inflammation and changes in body composition.

Objective : The aim of this study was to examine the correlation between long-term pesticide exposure and potential body composition alteration in vegetable farmers.

Research Methods/ Implementation Methods : This was a cross-sectional study with 46 farmers who spraying pesticide in vegetables area. Subjects were determined by purposive sampling and must fulfil the inclusion and exclusion criteria. Indicator of pesticide exposure measured by cholinesterase serum and history of exposure, while parameters of body composition by bioelectrical impedance analysis (BIA) using body fat monitor. There were body weight, body mass index, resting metabolism rate, total, visceral and subcutaneous fat, skeletal muscle also body age.

Results : Subjects with abnormal AChE were only 8.9%. AChE level had no correlation with all components of the exposure history, but had a significant correlation with body composition parameters ($p<0.05$), that was body weight, BMI, percent fat, percent visceral fat, RMR with strength of correlation is weak (R 0.31-0.34).

Conclusion/Lesson Learned : Based on this study AChE may represent a good indicator of metabolic alterations in body composition and may occur due to lipid metabolism disruption.

Keyword : cholinesterase; metabolic risk; body composition; BIA; farmers