

Role of neuronal markers in the pathophysiology of obesity

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Obesity has grown to epidemic proportion throughout the world. Its complications include diabetes, cardiovascular diseases and chronic diseases. However the exact pathophysiology of obesity is still unclear. Excessive food intake seems to play a role in the development of obesity. Role of hypothalamus in the control of food intake has been well-documented. However, human studies on eating behaviors indicated that hypothalamus may receive input from other brain regions, particularly from cortex. Using positron emission tomography (PET) scan, we investigated brain responses (by measurements of regional cerebral blood flow (rCBF), marker of neuronal activity) to the meal stimulations in certain population such as lean, obese subjects, and lean people who has history of severe obese but successfully maintained weight loss (former obese). Results in lean individuals indicated that satiety was associated with increases rCBF in the left dorso-lateral prefrontal cortex (LDLPC). In comparisons of brain responses to a meal between lean and obese individuals, we found that lesser activation in the LDLPFC was observed in obese individual when compared to lean individual regardless of meal size. In addition, normalized neuronal activity in this area has been observed in former obese individuals. In conclusion, differential response of neuronal activity in the LDLPFC may be either an acquired feature of obesity that reverses with successful weight loss or an inherent feature in those people who are able to successfully maintain weight loss. Our findings also indicate that the LDLPFC could be a target for future interventions aimed at modulating eating behavior.

Biography

Duc Son N.T Le has got Medical Doctor in 1997 from the Pham Ngoc Thach Medical University; and completed his Ph.D. in 2003 from School of Medicine, University of Tokushima, Japan; and postdoctoral studies from Phoenix Epidemiology and Clinical Research Branch of National Institute of Digestive, Diabetes and Kidney Diseases, NIH. He is the invited lecturer of Pham Ngoc Thach Medical University of Ho Chi Minh City and works as physician for WE CARE Clinic, Vietnam. He has published more than 30 papers in reputed journals.