Thesis Title The Study of Factors Related to Non Insulin Dependent Diabetes Mellitus : A Study of the Patients in Bhumibol Adulyadej Hospital

Name Flight Lieutenant Supaporn Thanakiatvaree

Degree Master of Sciences (Biostatistics)

Thesis Supervisory Committee Associate Professor Dr. Yawarat Porapakkham

Associate Professor Dr. Sathit Vannasaeng

Assistant Professor Dechavudh Nityasuddhi

Wing Commander Dr. Supat Intarapirom

ABSTRACT

The purpose of this research is to analyze factors which involve with the cause of NIDDM and construct forcasting equation from these factors. Data is collected from 700 patients at Bhumibol Adulyadej Hospital in which the study group consists of 350 patients and the control group consists of the rest. The collecting method is systematic random sampling. Data is collected from various sources such as OPD cards , patient history and interviews.

The estimation of the Relative Odds to find the relationship of each factor by using the contingency table in the univariate analysis indicated that the factor which involves the most with the occurence of DM is the body mass index which has RO equals to 12.7 ($8.5 < RO < 18.9$). Other risk factors involved are history of DM among family members, age, sex, occupation, number of offsprings, systolic blood pressure, consuming alcoholic beverages every 1-2 days, income

between 8,000-10,999 baths, income between 5,000-7,999 baths and place of residence. These factors have RO's equal to 7.9, 6.5, 4.7, 3.5, 3.3 2.9, 2.6, 2.5, 1.7 and 1.7 relatively. The estimation of the Relative Odds when using the Muliple Logistics Regression Analysis found that the factor which involves mostly with the occurrence of DM is the history of DM among family members which has RO equals to 10.0 ($5.4 < RO < 18.6$) and other risk factors involved are body mass index age, consuming alcoholic beverages every 1-2days, number of offsprings sex and occupation. Theses factors have RO's equals to 8.7, 4.9, 2.7, 2.3, 2.2 and 2.1 relatively. The predicted equation for the possibilities of DM occurrence by using Discriminant analysis yielded the following equation.

D = - 6.8421 + 0.1954 (Body mass index)
+ 0.6027 (History of DM among family members)
+ 0.2227 (Consuming alcoholic beverage)
+ 0.0971 (Number of offsprings) + 0.0200 (Age) + 0.400 (Sex)
+ 0.0071 (Systolic blood pressure) - 0.0002 (Occupation)
- 0.0238 (Education level) + 0.1299 (Place of residence)

This equation has statistical significance at $p < 0.001$ which Canonical correlation equals to 0.7253 and Wilk's lambda equals to 0.4740 . The cut off point of this equation is equal to 0 that is if values of all factors has substitued into the equation . Discriminant score(D) is greater than 0 then it is a study group and if less than 0 then it is control group (figure 1). This equation can estimate the percent of correctly classified value at the rate of 85.7 percent, the sensitivity at the rate of 84.3 percent and the specificity at the rate of 87.1 percent.