Overweight as Another Risk Factor for Colorectal Neoplasia Apart from The Asia-Pacific Colorectal Screening (APCS) Scoring in Thai The Population

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Background: The Asia-Pacific Colorectal Screening (APCS) scoring system comprising age, sex, family history of colorectal cancer (CRC), and smoking status, has been proposed to identify high-risk subjects for advanced neoplasia. An evidence from Western countries showed that overweight and metabolic syndrome also increase the risk of CRC.

Objective: We aimed to evaluate an association between combining overweight and metabolic syndrome into APCS score and the risk for colorectal neoplasia (CRN).

Method: We conducted cross-sectional study of consecutive subjects who performed colonoscopy for CRC screening in our CRC screening clinic from November 2016 to September 2017. Demographic characteristics, factors in metabolic syndrome criteria, and characteristics of polyp were collected. According to the World Health Organization (WHO), overweight for Asian population was defined as body mass index (BMI) of ≥23 kg/m². Metabolic syndrome was defined by National Cholesterol Education Program III (NCEP). APCS score had a range of 0-7 points based on the sum of the score of each factor. Score 4-7 was defined as high-risk for advanced colorectal neoplasm. CRN was defined as adenoma (tubular, villous, tubulovillous, sessile/traditional serrated adenoma) and CRC. Logistic regression analysis was used to assess the association between the potential risk factors and CRN. Any variables with p < 0.10 in the univariate analysis were included in the multivariate analysis to estimate the adjusted odds ratio (OR) and 95% confidence interval (CI).

Results: A total of 705 subjects were enrolled. Mean age was 61.6±9.4 years and 437(62%) were female. The prevalence of overweight, dyslipidemia, hypertension, impaired fasting glucose, and metabolic syndrome were 41%, 44%, 43%, 24%, and 25%, respectively. The prevalence of dyslipidemia, hypertension, impaired fasting glucose, and metabolic syndrome was higher in participants with CRN than those without CRN. However, there was not statistically significant. According to the APCS score, there were 131(19%), 522 (74%), and 52 (7%) participants in the high-, moderate-, and low-risk, respectively. Two hundred forty-five subjects (35%) had CRN; whereas, 460 subjects (65%) did not have CRN. In univariate analysis, the high-risk of APCS score (OR, 2.24; 95% CI, 1.52-3.29), overweight (OR, 1.94; 1.35-2.78), hypertriglyceridemia (OR, 1.51; 1.05-2.19), and hypertension (OR, 1.45; 1.06-1.99) were significantly associated with an increased risk for CRN. In multivariate analysis after adjusting for the high-risk of APCS score, overweight remained a factor that increased risk of CRN (adjusted OR, 2.04; 95% CI, 1.32-3.14).

Conclusion: In addition to the APCS clinical risk stratification, overweight is the independent risk factor for CRN. Overweight has two-fold increased risk for CRN after adjusting the high-risk of APCS.

Keywords: Metabolic syndrome, Overweight, Colorectal neoplasm, Colorectal neoplasia, Colorectal cancer, Asia-pacific colorectal screening score