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**Title:** Influence of body mass index on asthma severity and control: A cross-sectional study

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**Body:** Background: Elevations in body mass index (BMI) are reported to affect asthma condition and response to treatment. OBJECTIVES: We investigated relationship between BMI and the asthma severity and control. METHODS: Subjects were 191 asthmatic patients treated at Asahikawa Medical University Hospital. Their backgrounds, asthma symptom and short-acting beta(2)-agonist use were surveyed from the medical charts. They were assessed according to GINA classification. Their latest vital capacity (VC), forced expiratory volume in one second (FEV1) and inspiratory capacity (IC) as a base pulmonary function, and fast blood glucose (FBS) and serum total cholesterol (TC) measured within six months of the study as metabolic factors were studied. We divided the subjects to three groups (GINA Step 1 + 2, Step 3 and Step 4) and analysed relationship between GINA Step and other factors. RESULTS: In the male subjects, the means of BMI (SD) in Step 1 + 2, Step 3, Step 4 were 22.2 (2.6), 23.4 (3.7), 26.0 (5.8), respectively. In the female subjects, the means of BMI (SD) in Step 1 + 2, Step 3, Step 4 were 22.0 (4.0), 22.4 (4.6), 25.0 (4.6), respectively. There were no significant differences in the metabolic factors among three groups of the both sexes. In the male subjects, %FEV1 in Step 3 and Step 4 were lower than that in Step 1 + 2. Also, %IC / VC were higher than that in Step 1 + 2. In the female subjects, those association was not observed. A multivariate regression analysis was performed to Steps and BMI, lung function and metabolic factors. We found positive associations between GINA Step and BMI. CONCLUSION: This study suggests a significant association between BMI and the asthma severity and control.