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Title: Pulmonary function test changes after cessation of inhaled corticosteroid therapy in asthma patients

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Body: Background: Although guidelines recommend daily therapy for patients with mild persistent asthma, most patients use inhaled corticosteroid (ICS) intermittently or according to their symptom. Aim: To clarify the findings of pulmonary function test after cessation of ICS in patients with mild persistent asthma and whether we can prospect which patients will be deteriorate in pulmonary functions after interruption of ICS. Methods: A total of 193 patients with mild persistent asthma who stopped ICS and were able to re-evaluate the pulmonary function tests when they revisited our clinic, were recruited from 4644 asthma patients who visited our clinic from June 2001 to December 2011. We compared the findings of pulmonary functions between before and after cessation of ICS. We also compared the pulmonary functions on initial visit between the patients who were worsened and unchanged in FEV1 after stopping ICS. Results: Seventy two patients (37.3%) were declined in 10% of FEV1 after cessation of ICS (group A), while 121 patients were unchanged (group B). The percent predicted FEV1 in group A before cessation of ICS were $100.8 \pm 12.6\%$ and those of after were $84.7 \pm 13.3\%$ ($P < 0.001$). The percent predicted FEV1 in group B before cessation of ICS were $101.6 \pm 12.4\%$ and those of after were $101.9 \pm 12.4\%$ (N.S.). The percent predict FEV1 on initial visit were $91.2 \pm 13.1\%$ in group A and $95.6 \pm 13.4\%$ in group B ($p < 0.05$). Conclusion: It may be possible that patients with a FEV1 above 95% predicted normal on initial visit can be treated by as-needed ICS but the patients with lower percent predicted FEV1 on initial visit should be treated with daily ICS.