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Title: Once-daily inhaled corticosteroids in children with asthma: Not a simple solution for non-adherence

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Body: Introduction Adherence to inhaled corticosteroids is poor, and this is a major cause of persisting symptoms in children with asthma. Simplifying treatment regimens is recommended to increase adherence. In children with asthma, however, the effect of this intervention has hardly been studied yet. Methods. This analysis was part of an observational study with one year follow-up of asthmatic children aged 2-6 years, receiving asthma care in our outpatient clinic (with guideline-based comprehensive asthma education). Children diagnosed with asthma were being prescribed a twice-daily dose of inhaled corticosteroids (ICS), which could be stepped down to a once-daily dose when asthma control was achieved. We compared adherence, as assessed by Smartinhaler® device, between children on once- and twice-daily dosing of ICS. Results Eighty-one children were included; median (interquartile range) adherence during the 12-month study period was 87% (70-94%). Median adherence was similar in the 54 (67%) children with a single-daily dose and the 8 (10%) children with twice-daily dose regimen (p=0.468). ICS dosing was stepped down from twice to once daily in 14 children during the study, after which the median adherence increased with 4% (p=0.035). The median percentage of days without medication, however, increased from 3 to 11% (p=0.001), particularly in children with poor adherence. Conclusion Although once-daily dosing was associated with slightly higher adherence rates, this was offset by an increased number of days without medication. Stepping down ICS therapy from twice to once daily dosing does not improve ICS adherence in children receiving comprehensive guideline-based asthma care.