

Fig. 1. Occurrence of day-time and night-time symptoms (n = 494)

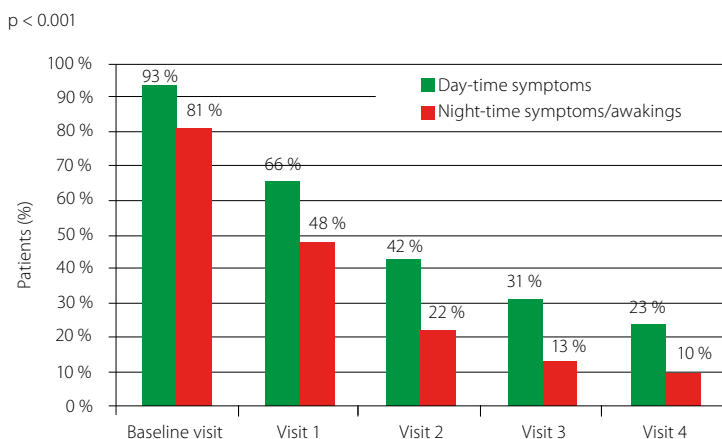
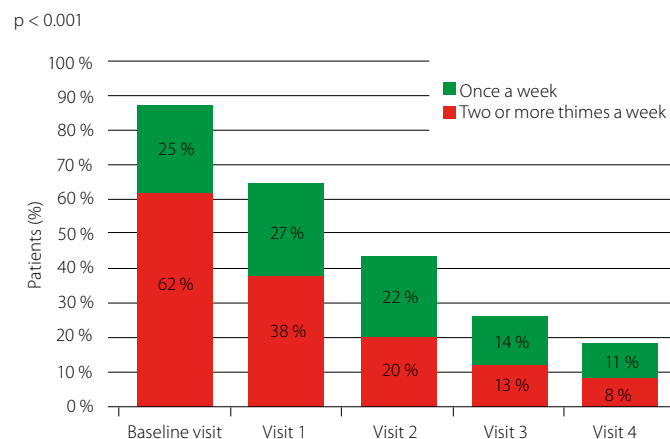


Fig. 2. Use of reliever medication (n = 494)



Limitation in daily activities

A similar trend was observed for limitation in the patients' daily activities. The proportion of patients with a limitation in daily activities gradually decreased from 67% at the baseline visit to 5% at the end of the study period (p < 0.001).

Use of reliever medication

Eighty-seven percent of the patients reported rescue medication use during the week preceding the baseline visit. During the study period, the proportion of patients requiring rescue medication at least once a week decreased to 19% at the final visit (p < 0.001). Similarly, the proportion of patients requiring reliever medication \geq twice a week decreased from 62% at the baseline visit to 8% at the final visit 4 (p < 0.001) (Fig. 2).

Exacerbations

Within a period of 3 months before the baseline visit, 61% of the patients suffered from an acute flare-up of asthma. Between the baseline visit and visit 1 (two weeks), an asthma flare-up occurred in 20% of the patients. However, between visit 1 and visit 2 (two weeks) an exacerbation occurred only in 6% of the patients. At the end of the study, less than 3% of the patients had an asthma flare-up.

Pulmonary function testing

Spirometry testing at the baseline visit indicated that 79% of the patients had a ventilatory disorder. From this group, 41% of the patients suffered from moderate-to-very severe obstruction or combined ventilatory disorder. As shown in Fig. 3, the proportion of patients who achieved normal lung functions according to spirometry increased to 85% by the end of the study.

Evolution of Asthma Control Test score

The mean ACT score at the baseline visit was 16.7 (SD 3.8). During follow-up, the score increased continually to 23.8 (SD 1.7) at the final visit 4 (p < 0.001). At the end of the treatment period, 55% of patients achieved the highest ACT score (25) (Fig. 4).

Pharmacological asthma treatment

According to the study protocol, FSC therapy was prescribed in dosages based on the physician's clinical judgment. The mean daily dose of FCS prescribed at the baseline visit was 721 (SD 289) μ g. However, as asthma control improved in the course of the treatment, the dose of FSC dropped to 672 (SD 317) μ g at the final visit (p = 0.041). Modification of FSC dosage during the study period was not required for nearly two thirds of the patients. This implies that the majority of subjects remained guideline concordant on initial FSC daily dose with respect to the 12-week duration of the study. Other medications frequently used included oral antihistamines (44% at the baseline and 39% at the final visit 4), topical corticosteroids (10% and 12%, respectively), montelukast (6% and 10%, respectively), oral theophylline with slow release (7% and 8%, respectively), systemic corticosteroids (1.8% and 1%, respectively), and inhaled tiotropium bromide (1% and 1%, respectively).

Impact of comorbidities on treatment success rate

At the baseline visit, there was no correlation between the ACT score and the number of comorbidities (p = 0.299). Total asthma control at the final visit 4 was achieved by 57% and 60% of pa-

tients with no or one comorbidity, compared to 41% of patients with \geq 2 comorbidities (p = 0.019).

Multivariate analysis

A multivariable logistic regression was used for evaluation of the significance of the impact of various initial parameters for asthma control (according to the ACT score). Given the high number of these variables, we also carried out a subsequent logistic regression analysis. The probability of achieving a higher level of asthma control significantly decreased due to the patient's age \geq 40 years (OR = 0.552, p = 0.002) and smoking (OR = 0.527, p = 0.021). On the contrary, achieving asthma control was more likely in patients with a documented presence of hypersensitivity to inhalation allergens (OR = 1.736, p = 0.019).

Discussion

Our results demonstrated that for the majority of patients with uncontrolled asthma a guideline-defined asthma control can be achieved. Due to a common failure to reach goals in the management of asthma in routine clinical practice, we included all of the available possibilities for improving the treatment results. Guidelines based interventions rely on a choice of an appropriate antiasthmatic drug with a high therapeutic potential, in combination with education and emphasis on adherence for improvement. We showed that such interventions could lead to clinical success as early as in three months. The results of treatment became evident in all established efficacy indicators including the occurrence of day-time and night-time symptoms, limitation in activities, use of reliever medication, exacerbations, spirometry results, and ACT score. At the end of the treatment