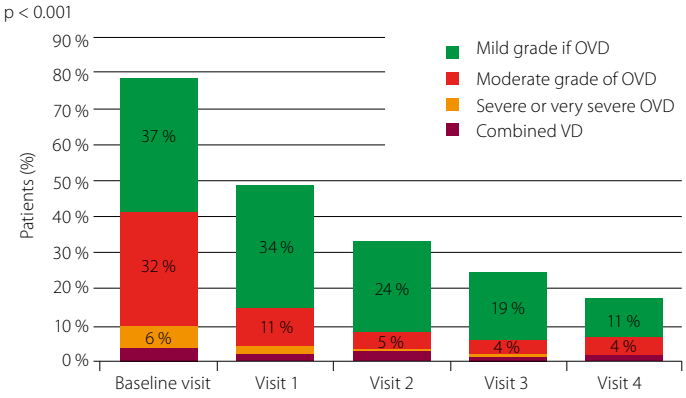
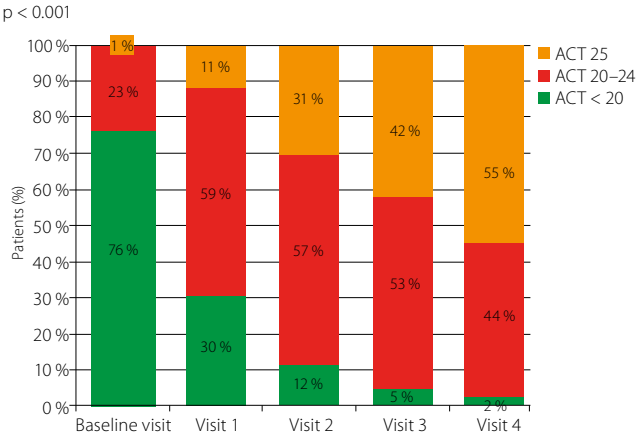
Fig. 3. *Spirometry findings over the study period (n = 494)*



OVD = obstructive ventilatory disorder, VD = ventilatory disorder

Fig. 4. *Spirometry findings over the study period (n=494)*



ACT = Asthma Control Test (NATHAN et al., 2004)

period, we found a decrease in the proportion of patients reporting day-time symptoms from 93% to 23%, night-time symptoms from 81% to 10%, limitation in common activities from 67% to 5%, and use of rescue medication ≥ twice a week from 62% to 8%. In line with clinical success, we observed improved lung functions (an increase in the proportion of patients with normal spirometry finding from 17% to 83%) and an increase in the mean ACT score (from 16.7 to 23.8). Moreover, 55% of patients achieved the maximum ACT score. Achieving asthma control was hindered by active smoking and the age ≥ 40 years. On the contrary, patients with extrinsic asthma had a better chance for treatment success by using a fixed-dose ICS/LABA combination.

In our study, we chose a combination of pharmacological and non-pharmacological approaches in order to achieve an improvement in asthma control in outpatient population. Results of numerous long-term clinical trials confirm the potential of FSC for achieving asthma control more rapidly and with a higher probability than ICS monotherapy. The GOAL study showed early signs of treatment success during the initial dose escalation phase, where total control was achieved in 42% and a good control in 71% of patients treated with FSC. With continued long-term regular treatment, the proportion of patients with well-controlled disease increased during the open-label phase to 78% (3). Despite the differences between the designs of the GOAL trial and our real-life study, the results regarding asthma control seem to be similar. Moreover, from a clinical point of view, it is highly encouraging that it is possible to achieve well-controlled asthma in a majority of patients as early as after three months with regular treatment with ICS/LABA (12, 13). Our observations fully confirm such conclusions. At the end of the 3-month period, only 2% of patients still had uncontrolled asthma according to the ACT score. Similarly, as in randomized clinical trials, the likelihood for achieving asthma control with ICS/LABA combination was also confirmed in real-life surveys (2, 12). Recently, a prospective, non-interventional study of a fixed dose ICS/LABA combination therapy across a spectrum of community-based asthma patients in a real-life setting showed a clinically relevant improvement in asthma status (asthma control according to ACT scores, lung function, quality of life according to AQLQ scores and severe exacerbations) in a diverse population during a one-year period (14).

Additionally, regular long-term treatment evidently decreases the extent of airway hyper-responsiveness, which is reflected in a reduction in the underlying asthmatic inflammation (15). Furthermore, the stability of maintaining asthma control increases with treatment duration (12). Asthma patients treated with a control-driven approach do not usually require escalation of maintenance pharmacological treatment and their main daily ICS doses are lower than with ICS monotherapy (3, 9, 15). In our group of patients, we noticed a clear tendency towards a stepwise lowering of the ICS dose with improving the level of asthma control. On the other hand, we must acknowledge that patients with no FSC dose modification during the 3-month duration of the study (67 %) were treated in accordance with the current guidelines (3).

Poor adherence is one of the key reasons for the failure in achieving the goals of asthma management. Globally, in asthma patients, adherence is lower than in other chronic diseases, and ranges from 28% to 43% (16). The overall adherence to the asthma treatment plan can also be enhanced by regular visits to a healthcare provider (16). As shown in the prospective phase of the observational PRISMA study, regular monitoring involving outpatient visits by patients with complex management of disease, along with pharmacological therapy, made an apparent contribution to improving asthma control. During a one-year period, total asthma control (ACT score 25) was achieved in 22.2% of the patients and good control in 58.7%, which approaches the proportion of patients with an ACT score ≥ 20 in our study (17). Our study suggests that frequent visits and patient motivation to adhere to treatment significantly contributed to success in the management of asthmatic patients. An improper use of an inhaler device is one of the most frequent reasons for insufficient asthma control (18). Thus, we added training in inhaler skills and adherence to the program of scheduled visits. Other important factors found to decrease the treatment success include active smoking and the presence/number of certain relevant comorbidities (19, 20). Similar to the observational ASIT study (20), in our study smoking and concurrence of ≥ 2 comorbidities showed an adverse impact on the likelihood of achieving asthma control. Therefore, an intervention directed at smoking cessation and aggressive treatment of comorbidities should be an integral part of the care of asthma patients. Although we did not perform an analysis of the impact of particular comorbidities, we could conclude that a subgroup of patients with chronic bronchitis or COPD would have had a lower treatment success rate. This could indicate that age and smoking are universal adverse prognostic factors in a multivariate analysis. We found a re-