Treatment of Patients with uncontrolled Asthma using high dose inhaled Corticosteroids admistered by controlled Inhalation – A retrospective Analysis

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Introduction

Treatment of uncontrolled or exacerbated Asthma remains a challenge. Often the application of systemic corticosteroids is necessary. Patients with very severe asthmas require a continuous therapy with systemic steroids. Since this therapy has severe side effects, alternative ways of anti-inflammatory therapy are needed (I,II,III). Since 2006 we try to treat patients with high doses of topic Corticosteroids using a system for controlled Inhalation (AKITA™, Fa. Activaero) with a extreme high bronchial deposition of nebulised substances. The device has previously shown a pulmonary deposition of more than 80% of the nebulised drug. In this poster, we present a retrospective analysis of patients receiving this therapy in our hospital.

Fig. 1. : Patient getting advise for controlled Inhalation in our „Inhalatory“

Methods

We analyzed data of all patients receiving Fluticasone with the AKITA™ System in 2007 by records. All were treated with a high dose therapy with 2,0 mg fluticasone as add on to their normal reliever therapy. The Indications for this intervention were Asthma exacerbation, poorly controlled Asthma and adjuvant therapy while systemic steroid weaning. Patients were at a mean age of 54.5, 42 male, 70 female. All of them suffered of asthma, most of them mixed type (69 vs. 39 Intrinsic Asthma vs. 4 pure allergic Asthma). All patients had guideline conform therapy including topical steroids and long acting Beta-Receptor agonists (LABA) as long time treatment. Before and after therapy lungfunction testing including a bodyplethysmography and measurement of Nitric oxide in Exhale was performed. In patients receiving OCS our special interest was the dosage before and after the treatment, converted in prednisolon-equivalent-doses. The controlled Inhalation was carried out in our “Inhalatory” under guidance of special trained personal. The adjustement of the controlled inhalation on the individual lung function of the patients was made by the referring attending physician using a little Excel™-based programm (see fig 2.)

Fig. 2.: Exel based sheet for adjustment of the controlled inhalation steering. We use 6 different Smart cards to have a individulized Inhalation Protocoll.

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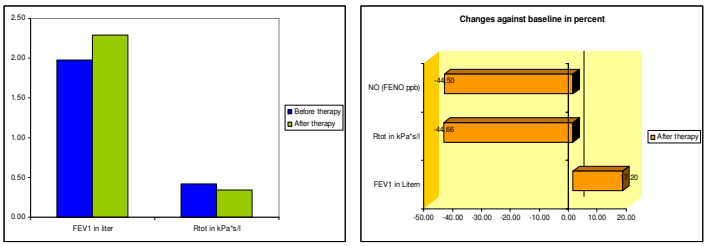
Results

Patients were treated for a mean duration of 3 weeks. There were no severe side effects registered, all patients received high dose Fluticasone for more than 7 days. Using the AKITA™ device for daily inhalation was well accepted by the patients. Of all patients treated, the average FEV1 improved by 17.2 % (340 ml) , $p < 0,0001$ vs. baseline. FEV1%VC improved from 68.9 to 73.6 % in average. Exhaled NO was reduced by 44.5% (33.9 ppb) (fig. 3, 4) .
The OCS dose of patients could be reduced by 7.6 mg Prednisolon-equivalent (33,2% reduction ,$p < 0,0001$). Of the 83 OCS dependent Patients, 53 could reduce their OCS dose (- 87,5 to -1 mg reduction), 12 stayed on same dose and 18 had to take a dose of OCS (2,5 – 20 mg). Both groups, the OCS dependent and the Non dependent patients had a benefit of the therapy (fig 5.). Of the Non dependent patients just 6 had to receive OCS while treatment time. In 4 cases, OCS treatment could be ended completely.



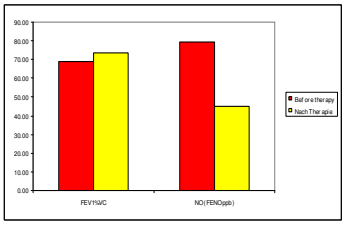


Fig. 3,4,5. . Results before and after treatment in absolut numbers (3+5) and changes in percent (4).

Discussion

In summary, the high dose therapy with inhaled corticosteroids using this type of controlled inhalation seems to be effective, well tolerated and safe. We saw e rising of FEV1 and FEV1%VC , a decrease of exhaled NO as marker of eosinophilic bronchial inflammation and a decrease of the needed dose of OCS in the OCS dependent group. One lack of this study is the absence of a non treated control group. Karagiannidis et al. showed a nearly similar effect on exhaled NO on a historical collective just by staying in our high altitude hospital (IV). But they didn`t measure lungfuntional data, so that there is no possible comparison to our group. Another problem is, that we were no more able to differentate the indications for the primary description of the therapy. There may be differences in the outcome of patients receiving the high dose therapy for steroid weaning to those receiving it for exacerbation therapy or for improving asthma control . But for all that we think that this data is a strong support to go on with this therapy. What we now need is a prospective, placebo controlled trial to proof the therapeutic concept and to evaluate the possible side effects of this high dose topical corticosteroid treatment.

Literatur

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