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A randomized trial of intranasal beclomethasone dipropionate after polypectomy

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SUMMARY

Beneficial effects of intranasal beclomethasone dipropionate (Bdp) in patients with nasal polyposis have been reported earlier. This study was carried out to investigate whether long-term treatment with Bdp after polypectomy could prevent formation of new polyps and reduce the number of surgical removals. Forty consecutive patients without laboratory or other clinical signs of allergy but with severe nasal polyposis were included in the study. Twenty patients were treated with intranasal Bdp and twenty patients received no treatment after polypectomy. All patients were followed for at least 2.5 years. The size of the polyps that recurred was estimated at different time-intervals by the examining doctor. After six months there was already a significant difference in favour of the group treated with intranasal Bdp. Further results of the study and the clinical implications are discussed.

INTRODUCTION

Polyp formation in the nasal cavities is the result of a chronic inflammatory disease in the mucosa of the nose and the paranasal sinuses. The aetiology of this imflammation is still very much under debate and has been so for several decades now. However, the basic cause seems to be allergy or infection, or both. Hypersensitivity to acetylsalicylic acid (ASA) is rather commonly associated with nasal polyps often in connection with so-called intrinsic (non-allergic) asthma (Samter and Beers, 1967). However, intolerance to ASA per se seldom occurs in patients with nasal polyposis (Delaney, 1976).

As nasal polyposis is a chronic disease, surgical procedures can only bring temporary relief even if the surgery comprises radical operations on the paranasal sinuses. Medical treatment has been tried for several years, but apart from ACTH (Taylor, 1973) and general corticosteroid treatment (Wentges, 1967) it is of very little benefit unless there is a proven allergy, which may respond to antiallergic treatment.

During the last decade there have been several reports of a beneficial effect of local steroid treatment with beclomethasone dipropionate on bronchial asthma (Brown et al., 1972; Clark, 1972), vasomotor rinitis (Malm and Wihl, 1976;

Löfkvist and Svensson, 1976), seasonal allergic rhinitis (Mygind, 1973; Vilsvik, 1974; Löfkvist and Svensson, 1975) and nasal polyposis (Mygind et al., 1975; Deuschl and Drettner, 1977).
In spite of extensive use of the drug for up to five years, no major side effects are known with this potent steroid (Holopainen, E., personal communication 1981).
The aim of this study was to investigate whether long-term intranasal treatment with beclomethasone dipropionate *after* polypectomy could prevent or delay further polyp formation and reduce the need for surgical removal in patients with nasal polyposis.

PATIENTS AND METHODS

Forty patients with severe recurrent nasal polyposis, but without laboratory or clinical findings of allergy (negative history, cutaneous prick test and RAST), were included in the study. All patients had undergone polypectomy on at least three occasions before entering the study. None of the patients had received steroid treatment of any kind during a period three years prior to the study. The patients were randomly divided into two groups. One group of 20 patients received no medical treatment after the polypectomy. The other 20 patients were treated postoperatively with beclomethasone dipropionate intranasally, 400 micrograms daily for 1 month and then 200 micrograms daily.

The occurrence and size of the polyps were estimated by the examining doctor before the polypectomy and at intervals (1 month, 3 months and every 6 months) during the study, using a scale from 0–3, where 0 = no visible polyps, 1 = small polyps with good patency 2 = moderate polyps with moderate obstruction and 3 = totally obstructing polyps.

RESULTS

There were no major differences between the two groups regarding age or sex distribution, duration of the disease, number of earlier polypectomies, earlier steroid treatment or prevalence of intrinsic asthma (Table 1). All patients were

Table 1.

	beclomethasone dipropionate treatment postop.	no. treatment postop.
age distribution (years)	25–70 (mean 52)	23–79 (mean 46)
sex distribution (♀:♂)	6:14	5:15
duration of disease (years)	5–45 (mean 26)	4–39 (mean 25)
number of earlier polypectomies	3–20 (mean 9)	3–14 (mean 10)
earlier steroid treatment	4 patients	3 patients
intrinsic asthma	3 patients	2 patients

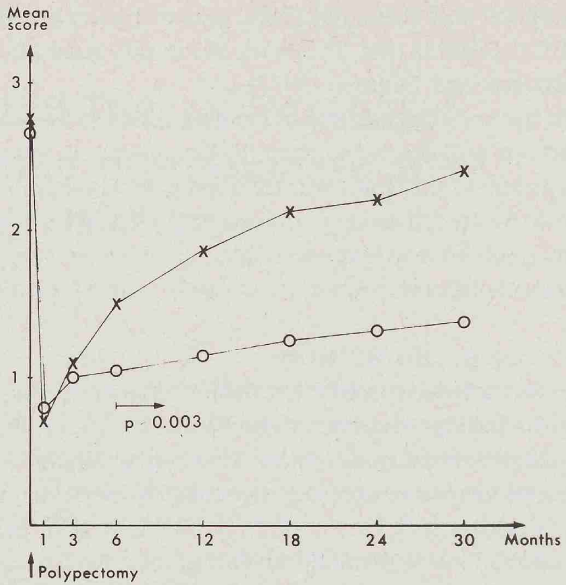

Figure 1.
Mean scores during 30 months after polypectomy for 20 patients treated with beclomethasone dipropionate (0) and 20 patients who received no treatment (x) after polypectomy.

followed for at least 30 months. Figure 1 shows the mean scores for the patients in the two groups during this period. The difference between the two groups is statistically significant from 6 months onwards.

The 20 patients who received steroid treatment were studied retrospectively regarding the number of polypectomies during 30 months prior to the trial. The number of operations during this period was compared with the number of operations during the period of steroid treatment. Here, too, there is a statistically significant difference in favour of beclomethasone treatment (Table 2). However, there were 4 patients who did not respond to the steroid treatment and their polyps recurred in the same manner as after earlier polypectomies.

Table 2. Comparison between the pre- and postoperation periods with respect to number of operations in 20 patients treated with beclomethasone dipropionate after polypectomy.

	30 months preop.	30 months postop.
number of polypectomies	14 $p = 0.0062$	4

We have not seen any adverse side effects of the treatment apart from one patient, who reported spot-bleedings when blowing his nose after 6 months treatment. The patient continued his medication and the bleedings disappeared.

Statistical methods. The treated group and the control group were compared with

respect to severity of the disease during the postoperative period by means of the test for trend in contingency tables (Maxwell, 1961). The sign test was used in order to compare the pre- and postoperative periods in the steroid-treated group with respect to number of operations. The *p*-values were rigorously determined by combining two methods of approximation, Sheppard's correction and Edgeworth's expansion (Cramér, 1946).

DISCUSSION

Several reports (see above) during the last decade have convincingly shown a beneficial effect of beclomethasone dipropionate in nasal polyposis. However, beclomethasone dipropionate alone shrinks the polyps slowly and there is therefore little to be gained by this treatment in patients with large polyps. In patients with severe polyposis a more appropriate treatment is polypectomy, which relieves the symptoms immediately. In patients with polyp formation in the nose it is important to carry out a thorough clinical examination and laboratory investigation to reveal any underlying cause of the polyposis, and to treat that cause accordingly.

In this investigation we have studied patients with severe recurrent nasal polyposis with no clinical or laboratory signs of allergy or infection. The patients had undergone polypectomy on several occasions and after each operation the polyps had recurred in spite of treatment with different drugs, mostly antihistamines. This study showed that by polypectomy and treating the patient postoperatively with beclomethasone it was possible to give most patients a longer period of relief than could be expected without steroid treatment. However, 20% (4/20) of the patients in the steroid-treated group did not respond at all to the treatment, i.e. their polyps recurred in the same way as after earlier polypectomies. This finding is in accordance with Mygind's figures for "neutrophil" polyps, that is polyps which are caused by chronic infection (Mygind, 1978). It is possible that these patients really suffer from a chronic infection in spite of the absence of clinical signs of infectious disease in the upper airways.

ZUSAMMENFASSUNG

Bei der Behandlung von Patienten mit nasaler Polyposis ist guter Effekt mit Beclomethasone dipropionate (Bdp) von mehreren Autoren beschrieben worden. Zweck dieser Studie war zu sehen ob Behandlung mit Bdp für eine längere Zeit nach Polypectomie Neubildung von Polypen verhindern und die Zahl der Polypectomien verringern konnte.

Vierzig Patienten ohne weder Laboratorienmässigen oder klinischen Allergien nahmen an der Studie teil. Zwanzig Patienten wurden nach einer Polypectomie mit intranasaler Bdp behandelt und zwanzig Patienten ohne jegliche Behandlung

gelassen. Alle Patienten wurden mindesten $2^1/_2$ Jahren gefolgt. Die Grösse der Polypen die recidivierten wurden bei verschiedenen Zeitpunkten kontrolliert. Nach sechs Monaten konnte schon ein statistische gesicherte Differenz zugunsten Bdp festgestellt werden.

Weitere Resultaten von der Studie und die klinische Folgen werden diskutiert.

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