

## CHAPTER 1

### INTRODUCTION



### BACKGROUND AND RATIONALE

Chronic non-infective rhinitis, although not a fatal condition, is nevertheless a common healthcare complaint. It is associated with persistent and troublesome symptoms that interfere with normal nasal function. Perennial rhinitis is a chronic non-infective nasal disorder in which the patients have symptoms all year around. It is a very common condition. No universal classification based on etiology exists, but a practical simple system provides two main groupings: allergic and non-allergic. Those who have perennial rhinitis usually present with nasal blockage, sneezing, watery nasal discharge, and occasionally itching nose. These symptoms are usually caused by inflammatory changes in the nasal mucous membrane. The nasal tissues become edematous, with dilated and engorged blood vessels, and extensively infiltrated with inflammatory cells.

The prevalence of perennial rhinitis in Thailand has not been studied but that of allergic rhinitis was found to be about 20.7% of Thai populations, being 22.8% in the adults.<sup>1</sup> Among allergic rhinitis, perennial type was found to be more prevalent than seasonal type, estimated to be 72%.<sup>2</sup>

The management of perennial rhinitis consists of environmental control, pharmacotherapy and immunotherapy. Among the pharmacotherapy, it has been well

established that patients with perennial rhinitis (both perennial allergic and non-allergic) respond significantly to intranasal steroids, including budesonide, more effective than placebo.<sup>3-11</sup> In recent years, topical nasal steroids have been gaining acceptance as the first-line treatment.<sup>12</sup> Nowadays topical nasal steroids, marketed in Thailand, are beclomethasone dipropionate, budesonide, fluticasone propionate and mometasone furoate.

Budesonide nasal spray is one of the most popular topical steroids used for seasonal allergic rhinitis and perennial rhinitis around the world. In Thailand it is very popular and has the highest market share. When administered topically to the nasal mucosa, it is poorly absorbed and has negligible systemic bioavailability. The recommended dose for adults with seasonal allergic rhinitis and perennial rhinitis is 400 micrograms per day. This recommended dose was derived from the clinical trials carried out in the Caucasians. Bunnag et al<sup>9</sup> showed that budesonide nasal aerosol at the recommended dose was effective and well-tolerated for Thai adults with perennial rhinitis .

The rationale for reducing the usual daily dose of budesonide from 400 to 200 micrograms in Thai adults with perennial rhinitis are:

1. The effect of budesonide nasal spray for chronic rhinitis is dependent on the local nasal application, not on systemic effect, similar to other modern topical nasal steroids. This effect was shown in the study of Lindqvist, et al<sup>13</sup> It means that the efficacy of topical nasal budesonide is related to the surface area of nasal mucosa.
2. The nasal dimensions of the Orientals are much smaller than those of the Caucasians. The mean cross-sectional area and the nasal volume in the Orientals were found to be statistically and clinically smaller than those of the Caucasians. This was studied by Morgan, et al<sup>16(14)</sup> comparing the nasal volume and the mean cross-sectional area of nasal cavities between the Caucasians and the Orientals. They found that the nasal volume of the Caucasians and Orientals were 4.27-5.09 and 3.47-4.31 cubic

centimetres respectively, while the mean cross-sectional areas were 1.30-1.63 square centimetres and 1.05-1.38 square centimetres respectively.

3. Balle<sup>4</sup> reported that using budesonide 400 micrograms per day was statistically more effective than using 200 micrograms per day, but he did not report anything about the clinical difference. Pedersen et al<sup>14(15)</sup> also showed that there was a statistically more efficacious effect in total nasal symptom score of using budesonide 400 micrograms per day than using 200 micrograms per day. They also reported that no statistically significant difference in overall nasal assessment and objective assessment between dosage of 400 micrograms and 200 micrograms per day but there was a clinical difference between these two dosages, favoring for 400 micrograms per day. Recently in 1997, Day et al<sup>15(16)</sup> showed that using budesonide aqueous nasal spray at a daily dose of 256 and 400 micrograms resulted in the same efficacy for adult patients with seasonal allergic rhinitis. All of these studies were conducted in the Caucasians.

Thus it seems to me that budesonide 200 micrograms daily may be enough for the Orientals but it has never been studied before. So it is warranted for studying in Oriental people.