

## How uncomfortable are the various positions recommended for the instillation of nose drops?

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### Abstract

Nose drops are widely used in the topical treatment of nasal disorders. Their efficacy has previously been shown to depend on the position of the head adopted during instillation. All three of the commonly recommended head positions (head back, praying-to-Mecca, Mygind's) are uncomfortable, and this may affect patient compliance. As yet, no assessment has been made of the discomfort encountered by patients. Twenty adults from a general otolaryngology clinic were asked to adopt each of three positions and then rate the discomfort experienced on a 10 cm visual analogue scale. The results show that although Mygind's position is well tolerated, the praying-to-Mecca position was significantly more uncomfortable than any other. In the absence of any evidence that the praying-to-Mecca position is clinically more efficacious than Mygind's, it seems inappropriate to continue to advocate its use.

**Key words:** Rhinitis; Treatment outcome

### Introduction

Topical nasal medications, in the form of drops, are widely used, particularly for the treatment of chronic rhinosinusitis with, or without, polyp formation. It is reasonable to assume that the effectiveness of such treatment depends on adequate delivery of the active ingredients to the site of pathology, namely the region of the turbinates and middle meatus. To this end, a variety of head positions have been advocated for the instillation of drops.

The manufacturers of some commonly prescribed preparations recommend simply extending the neck and instilling the drops with the head tipped back, as described in the patient information leaflets dispensed with Betnesol (betamethasone 0.1 per cent, Evans) and Otrivine (0.1 per cent xylometazoline, Novartis Consumer Health) and shown in Figure 1. Otolaryngologists often recommend instilling the drops with the head down and forwards ('praying to Mecca' position) as shown in Figure 2 (Mackay, 1997). Mygind has recommended instillation of drops while lying supine with the head extended off the end of the couch as shown in Figure 3, turning the head first to the right, then the left, then back to the right before sitting up with the head flexed, and holding each position for 30 seconds (Mygind, 1985).

The distribution of drops within the nose, as determined by <sup>99m</sup>Tc radiolabelled albumin drops is greater with Mygind's position than the head-back



FIG. 1

The 'head-back' position for the installation of nasal drops. position (Moren *et al.*, 1988). Mygind's procedure also gives a wider distribution within the nose compared to a nasal spray (Hardy *et al.*, 1985).

The only study of clinical efficacy has shown that betamethasone with neomycin drops are more effective in relieving the symptoms and signs of chronic rhinosinusitis when given in the praying-to-Mecca position compared to the head back position (Wilson *et al.*, 1987). Mygind's technique has not been subjected to a clinical trial.

There is, therefore, some limited evidence to support either the praying-to-Mecca position or Mygind's position for the instillation of nose drops. Anecdotally, many patients find the praying-to-



FIG. 2

The head-down-and-forwards ('praying to Mecca') position for the instillation of nasal drops.

Mecca position particularly difficult and unpleasant to use, and some revert to the less effective head-back position. The aim of this study was to determine how uncomfortable patients find each of these three positions, since tolerability will affect compliance and therefore clinical effectiveness.

### Methods

The subjects for the study were a consecutive series of 20 adult patients from a general Otolaryngology clinic. Patients were excluded from the study if there was a history of musculoskeletal or neurological disease. Each patient was asked to assume each of the three positions described above for 30 seconds, and then rate the discomfort felt on a 10 cm visual analogue scale marked 'comfortable' on the left and 'extremely unpleasant' on the right. Each of the three positions was presented in random order.

The responses were analysed using non-parametric statistical tests. The overall distribution of responses was analysed using Friedman's two-way



FIG. 3

Mygind's head-down-and-backwards position for the instillation of nose drops. After instillation the head is turned to the right, then the left, then back right, each for 30 seconds.

analysis of variance, and differences between paired values were assessed using a one-sample sign test with continuity correction.

### Results

Twenty patients were studied, 10 men and 10 women. Their ages ranged from 27 to 84 years with a median of 44 years.

The mean scores from the visual analogue scales were 16 mm (median 14 mm, range 2–74 mm) for the head-back position, 33 mm (median 24 mm, range 2–100 mm) for Mygind's position and 66 mm (median 75 mm, range 12–100 mm) for the praying-to-Mecca position. Fourteen patients rated the head-back position as most comfortable, compared to six for Mygind's position and none for praying-to-Mecca. Conversely, 17 patients rated the praying-to-Mecca position as least comfortable, compared to three for Mygind's and none for the head-back position.

The distribution of ranks among the three head positions was found to be unlikely to have arisen by chance, with Friedman's test giving  $p < 0.001$ . Comparison of the difference between paired results using the one-sample sign test showed that the praying-to-Mecca position was significantly more uncomfortable than either the head-back position ( $p < 0.0001$ ) or Mygind's position ( $p < 0.005$ ). Mygind's position was not significantly more or less comfortable than the head back position ( $p = 0.12$ ).

### Discussion

In the absence of instructions to the contrary, patients will usually instil the drops in the head back position. Indeed, the product information leaflets dispensed with many nose drops actually instruct patients to do so. Thus many patients will use their drops in a way which makes them less likely to be effective (Wilson *et al.*, 1987), leading to dissatisfaction and possibly unnecessary surgery. It is important, therefore, that doctors prescribing nose drops give their patients instructions as to how they should be used.

The published evidence, although limited, suggests that drops administered with the head upside-down will be better distributed along the lateral nasal wall (Moren *et al.*, 1988) and more clinically effective (Wilson *et al.*, 1987) than drops administered with the head simply tipped back. Many otolaryngologists therefore recommend the praying-to-Mecca position.

There is no reason, however, to suppose that this position is any more effective in this regard than Mygind's. This study has confirmed that Mygind's position is clearly better tolerated by patients than praying-to-Mecca. It seems reasonable to recommend Mygind's position for the instillation of nose drops until a randomized controlled trial is performed to compare the clinical efficacy of the two positions.

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