

Hot-water irrigation as a treatment of posterior epistaxis*

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SUMMARY

The commonly-used tamponade treatment for posterior epistaxis is painful and the patient may need hospitalization for several days. Irrigation with water of 50°C was introduced as a treatment for posterior epistaxis more than 100 years ago. This study compares the two treatment modalities with respect to effect, recurrence, pain, and length of hospital stay. Forty-four consecutive patients with posterior epistaxis were randomized to receive treatment with either hot water (21 patients) or tamponade (23 patients). In the group of patients treated with hot water, the treatment had to be stopped in seven patients (33%) because of lack of cooperation; nine patients (43%) could be dismissed from hospital with no need for further treatment, whereas five patients (24%) had recurrent epistaxis requiring additional tamponade treatment. Among the patients treated with tamponade, 14 patients (61%) could be dismissed from hospital with no need for further treatment, while nine patients (39%) had recurrent epistaxis requiring additional tamponade treatment. The median stay in hospital was five days for the group treated with hot water, and six days for the group treated with tamponade. Compared to the tamponade treatment, hot-water irrigation is almost as effective, the hospital stay is shorter, and the treatment is significantly less painful.

Key words: hot-water irrigation, tampon treatment, posterior epistaxis

INTRODUCTION

Epistaxis is a common condition. From a clinical point of view, it is practical to differentiate between anterior epistaxis, where the source of the bleeding can be visualized and treated directly, and posterior epistaxis, where the source of the bleeding cannot be visualized. Posterior epistaxis may be difficult to treat and the patient often requires hospitalization. Until about 200 years ago, treatment was practically non-existent. Effective treatment of posterior epistaxis was first made possible by the introduction of the frontal mirror by Turck in 1857, and the discovery of the incandescent lamp by Edison in 1879 (Malcomson, 1965). Since then, many different treatment modalities have been used. During recent years, posterior epistaxis has mostly been treated with tamponade of the bleeding nose cavity using gauze, water-filled balloon catheters, or a combination of both, in severe cases artery embolization, or acute surgical intervention (endoscopic coagulation or clips of the *arteria ethmoidalis anterior* or the *arteria maxillaris*). Tamponade treatment of posterior epistaxis is effective, but unpleasant for the patient because of pain and nasal stenosis

during the treatment period, which may last for several days. Complications to the tamponade treatment occur in the form of necrosis of the nasal mucosa, sinusitis, and septal perforations. An old treatment of posterior epistaxis is irrigation with hot water (48-50°C) through the bleeding nose cavity. The "hot-water treatment" was first described by Guice and Fayette (1884) and remained for many years the treatment of choice for posterior epistaxis. In recent years, this treatment has been used only sporadically.

The aim of this study was to compare the two treatment modalities with respect to effect, pain, and duration of hospital stay.

SUBJECTS AND METHODS

The inclusion criterion was posterior epistaxis requiring hospitalization and tamponade treatment. During a 9-month period, 44 patients fulfilled the inclusion criterion and were consecutively randomized either to the tamponade treatment using a water-filled balloon catheter (Seifert balloon) and additional tamponade with gauze, or to hot-water irrigation (HWI). Twenty-one patients were randomized to the HWI group (six

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women and 15 men; median age 56.7 years, range 22.7–85.5 years) and 23 patients were randomized to the tamponade treatment (10 women and 13 men; median age 63 years, range 33–88 years). During hospitalization all bleeding episodes were registered and the patients were asked to indicate on a 10-cm visual analogue scale the pain and discomfort experienced during treatment, the next morning and in the evening. During the stay in hospital, the patients in both treatment groups were instructed to stay in bed with the head elevated. They had cool, soft meals and were given 5–10 mg diazepam, thrice a day. Hot-water irrigation was performed using a thermometer (0–100°C), a thermo-bucket filled with 50°C water freshly tapped from the hot water tap, a 20-cm plastic tube, a “nose-olive”, and a 100-ml syringe (Figure 1).

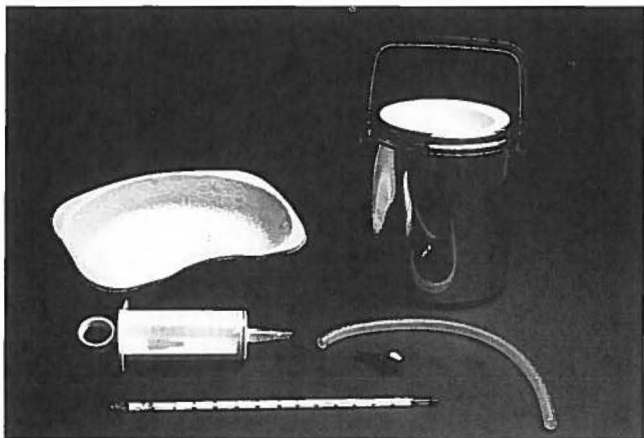


Figure 1. Hot-water irrigation was performed using a thermometer (0–100°C), a thermo-bucket filled with 50°C water freshly tapped from the hot water tap, a 20-cm plastic tube, a “nose-olive”, and a 100-ml syringe.

Hot-water irrigation

The patient is sitting with the head bend slightly forward (Figure 2). With the syringe mounted to the plastic tube, the bleeding nose cavity is irrigated with 100 ml of 50°C water. Irrigation is repeated until the bleeding is stopped, usually five times. During irrigation the patient is instructed to hold its breath to avoid water aspiration.



Figure 2. During hot-water irrigation, the patient is sitting with the head bend slightly forward. With the syringe mounted to the plastic tube the bleeding nose cavity is irrigated with 100 ml of 50°C water.

RESULTS

In the HWI group, 62% of the patients had a history of previous epistaxis requiring treatment compared with 52% in the tamponade group. Among the 21 patients randomized to HWI, irrigation had to be stopped in seven patients (33%) because of lack of cooperation, mostly because of problems with holding the breath during irrigation. There was no significant difference in the distribution of age and sex among the patients who could cooperate and those who could not. Of the 14 cooperating patients, nine (64%) could be discharged from hospital with no need for further treatment. In the tamponade group, 14 out of 23 patients (61%) could be discharged from hospital with no need for further treatment; nine patients (39%) had recurrence of posterior epistaxis when the initial tamponade was removed. The registration of pain and discomfort on the visual analogue scale was completed as prescribed by nine patients in the HWI group and by 12 patients in the tamponade group. Patients treated with hot-water irrigation experienced significantly less pain/discomfort on the following morning and the next evening than did patients receiving the tamponade treatment. No significant difference could be demonstrated between the two groups during the initial treatment (Table 1). One patient in the HWI group had previously been treated with tamponade and found the HWI treatment much less painful. The mean stay in hospital for the patients in the HWI group was five days (range: 1–9 days) and six days (range: 3–11 days) in the tamponade group (Table 2). For the patients with no recurrence of epistaxis during hospitalization, the median stay in hospital was four days in the HWI group and five days in the tamponade group. For the patients with recurrence of nose bleeding during hospitalization, the median stay in hospital was five days in the HWI group and eight days in the tamponade group. In the latter group, the median treatment time was three days for patients with no recurrence and seven days for patients with recurrence and subsequent new tamponade treatment. In contrast, the treatment time was less than 30 min for the patients in the HWI group. During hospitalization, five of the patients (22%) in the tamponade group were treated with antibiotics because of rhini-

Table 1. Mean pain score for the HWI- and tamponade groups.

	HWI group (n=21)	tamponade group (n=23)	
during treatment	3.0 cm	4.4 cm	n.s.
next morning	1.1 cm	4.2 cm	p < 0.05
next evening	0.9 cm	3.5 cm	p < 0.05

Table 2. Mean stay in hospital for the HWI- and the tamponade groups for patients with recurrence (+rec) and without recurrence (-rec) of posterior epistaxis.

	HWI group			tamponade group		
	-rec	+rec	total	-rec	+rec	total
No. of patients	9	12	21	14	9	23
days	4.2	5.4	4.9	5.1	8.4	6.4

tis or sinusitis, whereas none of the patients in the HWI group had this complication. After the patients were discharged from hospital, 21 patients were re-examined after 1–3 weeks (nine patients in the HWI group and 12 patients in the tamponade group). At re-examination the nasal mucosa was unaffected in all patients from the HWI group. In the tamponade group, six patients (50%) had crust formation and fibrin-lining of the mucosa on the side of the nose with previous tamponade. One patient had developed a septal perforation, and one patient had a synechia between the septum and the inferior conchae. In the HWI group, one patient (11%) had epistaxis after discharge from hospital, whereas it was presented by two patients (17%) from the group treated with tamponade.

DISCUSSION

Since tamponade treatment in cases of posterior epistaxis must be continued until the bleeding has stopped, it is not relevant to compare the effectiveness of the two treatments. We think it is essential that many of the patients treated with HWI could be discharged from hospital with no need for further treatment, and that none of these patients had any complications during their stay in hospital or after discharge from hospital. The recurrence rate of posterior epistaxis was almost the same in the two groups. The patients in the HWI group had a shorter stay in hospital and indicated less pain and discomfort compared to the patients in the tamponade group. The main disadvantage of the HWI method is associated with lack of patient cooperation and compliance. Thus, the HWI treatment had to be stopped in one-third of the patients because of poor cooperation and the risk of aspiration. A new catheter has been constructed by one of us (SES), which makes it possible to minimize the risk of aspiration and to perform the irrigation without patient cooperation. A new study has just been initiated exploring the efficacy of the new catheter.

The mechanism of the haemostatic effect of hot-water irrigation cannot be determined on the basis of the present study. In an

experimental study (Stangerup and Thomsen, 1995), rabbits were subjected to nasal irrigation with water ranging in temperature from 40–60°C. No changes were recorded after irrigation with water of 40–46°C. At temperatures of 48°C or higher, vasodilation and oedema of the mucosa occurred with subsequent narrowing of the intranasal lumen. Severe changes, including epithelial necrosis, occurred only after irrigation with water of 52°C or higher. The conclusion of the study was that the haemostatic effect of the hot-water irrigation is caused by: (1) oedema and narrowing of the intranasal lumen, creating internal and external compression of the leaked vessel; (2) vasodilation of the mucosal vessels decreases the flow and the intraluminal blood pressure; and (3) cleansing the nose and removing blood coagulates.

CONCLUSION

In cooperating patients with posterior epistaxis, hot-water irrigation is an effective treatment, which is without complications and less painful than the tamponade treatment.

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