

These uncomfortable symptoms lower postoperative patient quality of life after anaesthesia. However, sufficient predictive or preventive methods of these non-specific symptoms have not been developed. Anaesthetists should focus not only on major complications but also minor ones to improve postoperative patient outcome and quality of life.

Declaration of interest

None declared.

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Ice pops in the recovery room: effects on postoperative nausea and vomiting

D. E. Johns, V. Gerling, P. C. M. Pasker-de Jong*

Amersfoort, The Netherlands

*E-mail: pcm.pasker@meandermc.nl

Editor—Postoperative nausea and vomiting (PONV) is common in all age groups¹ and can have a significant negative impact on patient comfort and recovery after surgery.² Recent guidelines describe pharmacological options for prophylaxis and treatment of PONV, but non-pharmacological options are rarely explored.^{2,3} We investigated the effects of ice pops on PONV after elective major orthopaedic joint replacement surgery. Our hypothesis was that an ice pop during the immediate postoperative time period in the recovery room reduces the incidence of PONV.

We retrospectively studied the medical records of a random sample of all 1668 patients >18 yr of age who underwent elective

joint replacement surgery in 3 months before and after introduction of the ice pop in the recovery room at Meander Medical Centre (Amersfoort, The Netherlands). Patients with tracheostomies, intubated patients, and patients who were unconscious in the 24 h postoperative were excluded. In total, 96 patients (44 males, mean age 58 yr) in the pre-ice pop period and 97 patients (38 males, mean age 58 yr) in the ice pop period were evaluated. Data on administration of opioids and anti-emetic drugs during surgery and on the wards in the first 24 h after the operation were collected. All patients operated in 2015 were considered treated with an ice pop and those operated in 2014

Table 1 Characteristics of patients with and without ice pop offered after surgery

Patient characteristics	Without ice pop	With ice pop	P-value
n	96	97	
Age (yr); mean (sd)	58.3 (17.5)	57.5 (19.6)	0.78
Median [minimum–maximum]	60 [18–99]	60 [18–88]	
Male sex [n (%)]	44 (45.8)	38 (39.2)	0.38
Smoking [n (%)]	13 (13.5)	16 (16.5)	0.69
Type of orthopaedic operation [n (%)]			0.05
Knee	42 (43.8)	46 (47.4)	
Hip	23 (24.0)	19 (19.6)	
Shoulder	9 (9.4)	20 (20.6)	
Other elective	22 (22.9)	12 (12.4)	
Duration of operation [min; mean (sd)]	39.9 (29.0)	54.1 (45.4)	0.01
Duration >60 min [n (%)]	27 (28.1)	46 (47.4)	0.007
Opioid use [n (%)]	62 (64.6)	69 (71.1)	0.36
Postoperative nausea and vomiting [n (%)]	14 (14.4)	7 (7.1)	0.11
None [n (%)]	82 (85.4)	90 (92.8)	
Nausea only [n (%)]	5 (5.2)	5 (5.2)	0.03
Vomiting only [n (%)]	3 (3.1)	2 (2.1)	
Both [n (%)]	6 (6.3)	0 (0)	
Anti-emetic drugs [n (%)]	16 (16.7)	9 (9.3)	0.14

untreated. We calculated odds ratios with 95% confidence intervals (CIs) for PONV and anti-emetic use with ice pops as the determinant. Other potential determinants of nausea were studied where available and the association corrected for those that confounded the association. Odds ratios and asymptotic 95% CIs were calculated from contingency tables. Correction for confounders was done using logistic regression analysis.

Characteristics of the patients are shown in Table 1. After introduction of ice pops, both PONV and use of anti-emetic drugs occurred less frequently and were less severe. Most potential determinants of both PONV and the use of anti-emetics were more frequent after the introduction of ice pops than before. Adjustment for age, sex, smoking, use of opioids, and a long duration of the operation resulted in an odds ratio of 0.26 (95% CI 0.1–1.0, borderline significance) for PONV. The odds ratio for use of anti-emetics was 0.26 (95% CI 0.1–0.9). We evaluated the effect of ice pops separately among those with opioids because PONV occurred mainly among these patients. Ice pops had an odds ratio for PONV of 0.27 (95% CI 0.09–0.78) and for use of anti-emetics of 0.33 (95% CI 0.1–0.9). In the multivariate analyses, adjusting for age, sex, smoking, duration of the operation, and use of opioids reduced the odds ratio to 0.24 for PONV (95% CI 0.08–0.76) and 0.24 for anti-emetics (95% CI 0.08–0.69).

This simple single-centre retrospective study showed that the occurrence of PONV and use of anti-emetics were more than halved after introduction of ice pops in a homogeneous population of elective orthopaedic patients undergoing major joint replacement surgery. The effect was evident only in patients who had received morphine for postoperative analgesia. In those who did not receive morphine, the occurrence of nausea,

vomiting, and anti-emetic administration was negligible and did not change with the introduction of ice pops.

For patients at high risk for PONV, use of ice pops provides a cheap, non-invasive, and easy-to-use intervention that appears effective in reducing PONV, notably in patients treated with opioids.

Declaration of interest

None declared.

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Reply: allostatic load as an approach to support the theoretical assumptions of the Brief Measure of Emotional Preoperative Stress (B-MEPS)

W. Caumo^{1,2,3,4,*}, J. D. Segabinazi^{1,2} and L.P.C. Stefani^{1,4}

¹Post-Graduate Program in Medical Sciences, School of Medicine, Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, Brazil, ²Laboratory of Pain and Neuromodulation at UFRGS, Porto Alegre, Brazil, ³Pain and Palliative Care Service at Hospital de Clínicas de Porto Alegre (HCPA) and ⁴Pain and Anesthesia in Surgery Department, School of Medicine, UFRGS, Porto Alegre, Brazil.

*E-mail: wcaumo@hcpa.edu.br

Editor—We are grateful to Scott and McCracken¹ for their analysis and comments on our paper. The authors underscored the absence of a clear conceptual definition of the construct measured by the Brief Measure of Emotional Preoperative Stress (B-MEPS). We aimed to explain the theoretical assumptions considered to define the domain of interest in the development of B-MEPS as well as the psychometric foundations investigated thus far. We would like to highlight that the development of the measure agrees with the latest assumptions on test design published in the Standards for Educational and Psychological Testing.² Regarding test specifications, the standards state that the nature of the test development (the way in which the test is created) may vary widely as a function of the nature of the test and its intended uses.

As recommended by the Standards (2014), in the process of developing the B-MEPS we stated the purpose(s) of the test, the

intended users and uses, the content domain to be measured, and the expected examinee population. The greater challenge in the process to develop the B-MEPS was to identify a set of items that more precisely assessed preoperative stress. In fact, the B-MEPS scale was developed from several different tools currently used to measure depression symptoms, anxiety, minor psychiatric problems, and future self-perceptions.³ Thus the B-MEPS content items are related to stress since they were extracted from tools previously used to identify emotional aspects, including the surgical setting, to determine individual propensity for severe postoperative pain.^{4,5}

We understand that in evaluations using the B-MEPS, it could be emphasized that the examinee population answers should be related to their thoughts and feelings associated specifically with the surgery. In the B-MEPS development to discriminate