PONV

Postoperative Nausea and Vomiting

Jakob Walldén
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Illamående och kräkning efter operation

Jakob Walldén
Universitetslektor, Överläkare
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Operationscentrum, Sundsvalls Sjukhus

Vad tänker jag prata om?

Bakgrund

Riskfaktorer

Riskvärdering

Interventioner/strategier

Hur funkar det i verkligheten?

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Landstinget Västernorrland

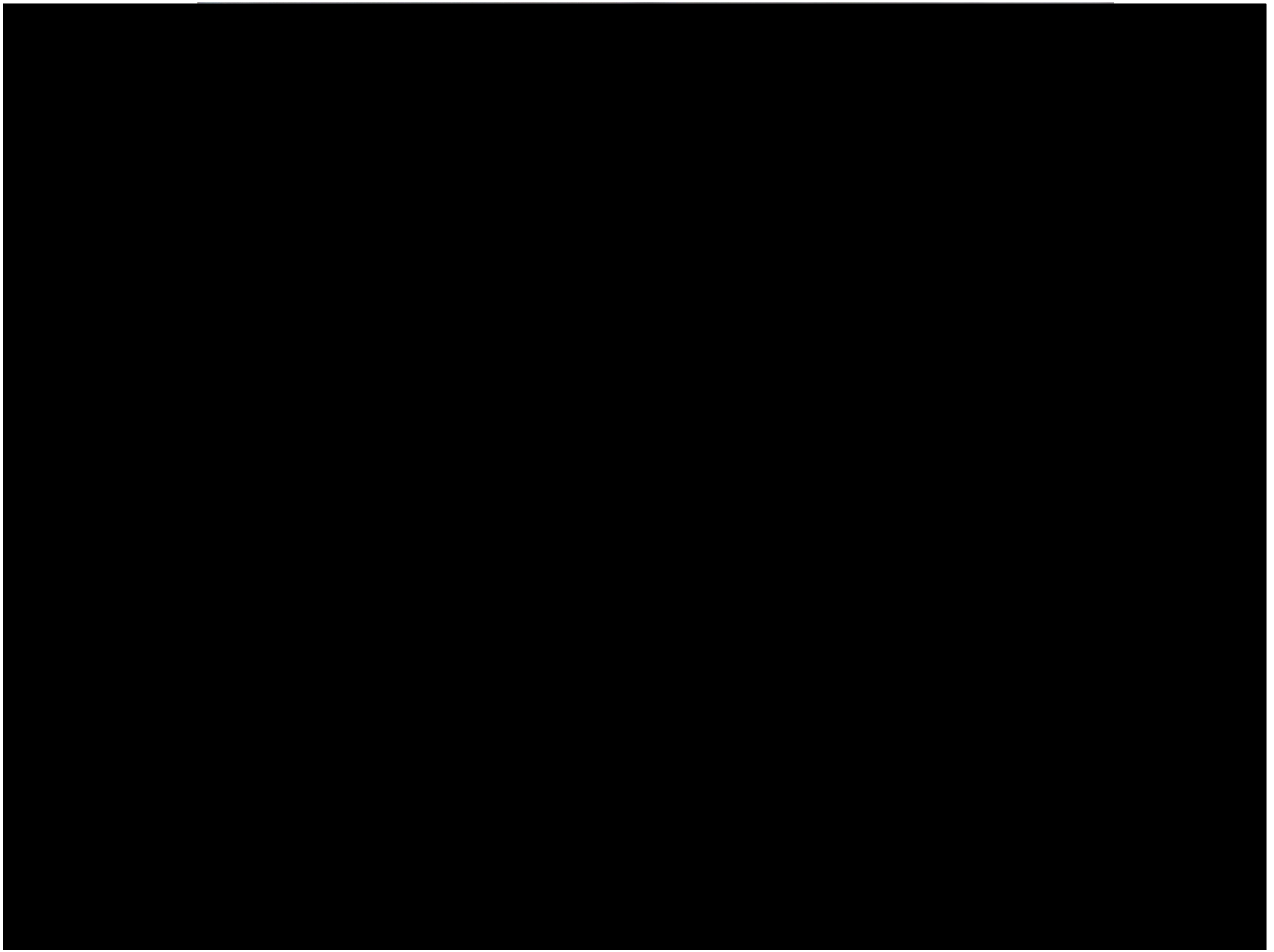
Begrepp

På Sjukhuset, 0-24 h

PONV = Postoperative Nausea and Vomiting

Hemma vid dagkirurgi

PDNV = Postdischarge Nausea and Vomiting

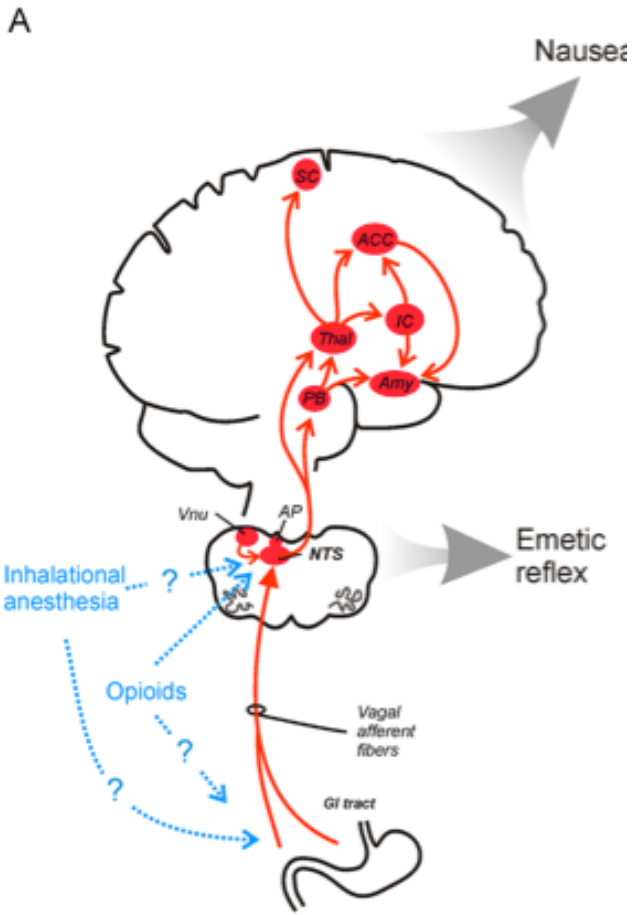


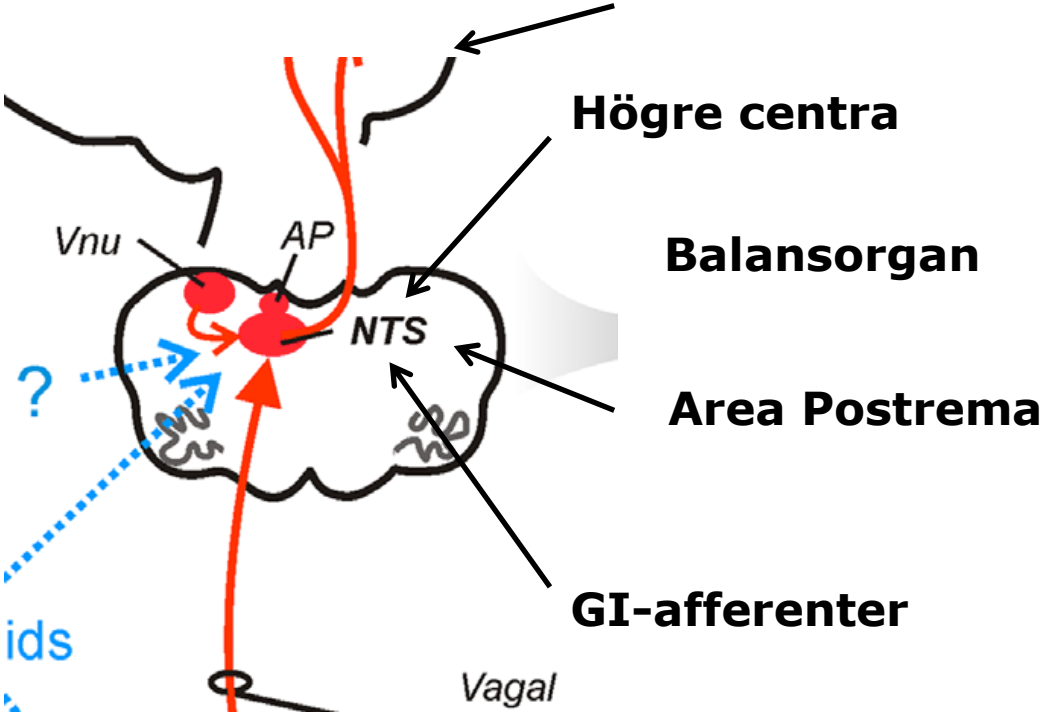
Review

Pathophysiological and neurochemical mechanisms of postoperative nausea and vomiting

Charles C. Horn [a,b,c,d,*], William J. Wallisch [c], Gregg E. Homanics [c,e,d], John P. Williams [c]

European Journal of Pharmacology 722 (2014) 55–66





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Review

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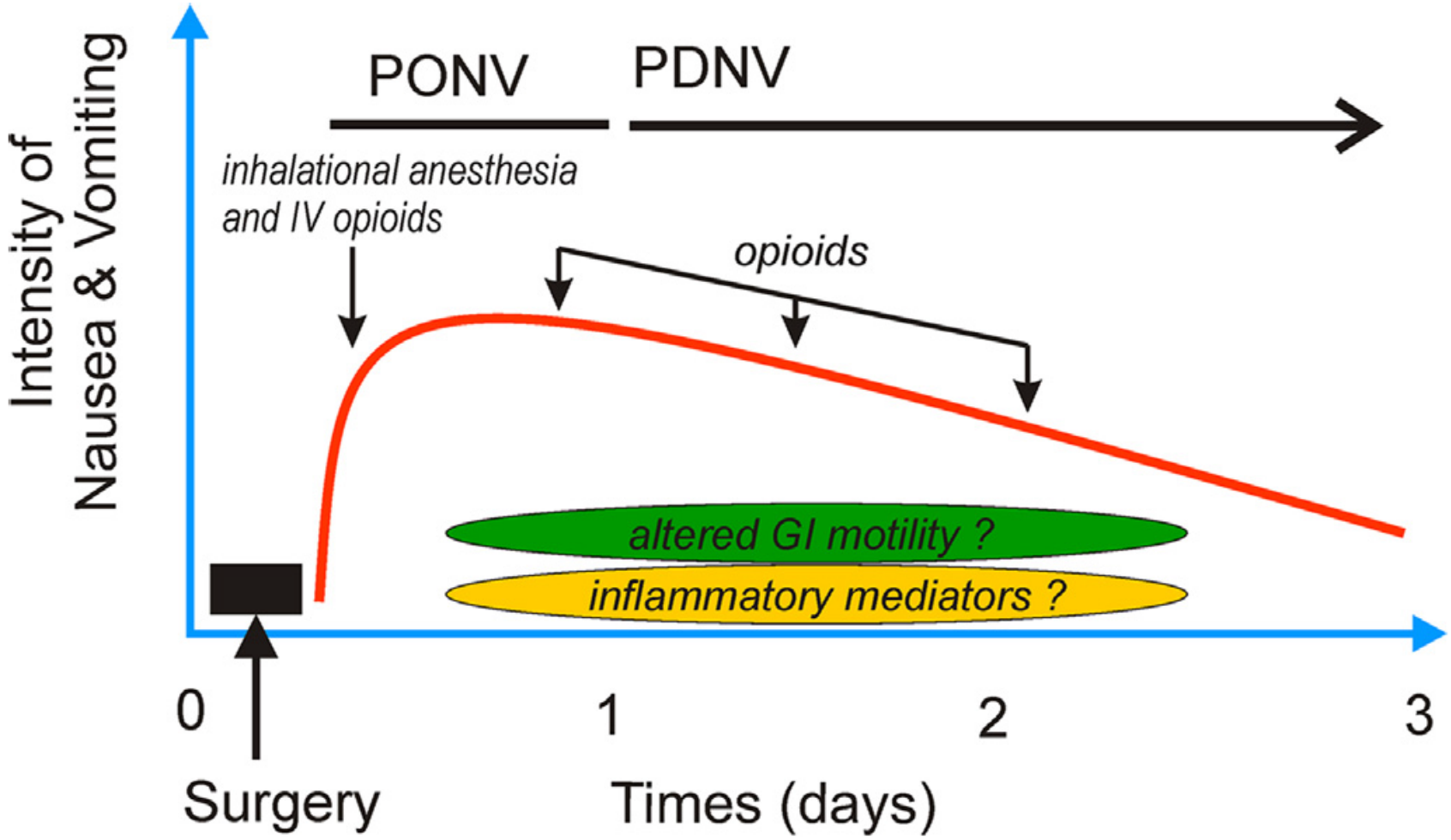

Konsekvenser PONV och PDNV

Sällan allvarligare komplikationer.

Lidande efter operation och vårdkostnader.

Patienter betalar gärna extra för att undvika PONV.

Historiskt:

30% PONV generellt

70 - 80% hos högriskpatienter

Idag:

?

Landstinget Västernorrland

A Prospective Study of Nausea and Vomiting After Breast Cancer Surgery

Susan W. Wesmiller, PhD, RN, Catherine M. Bender, PhD, RN, FAAN, Yvette P. Conley, PhD, Dana H. Bovbjerg, PhD, Gretchen Ahrendt, MD, Marguerite Bonaventura, MD, Susan M. Sereika, PhD

Journal of PeriAnesthesia Nursing, Vol ■, No ■ (■), 2016: pp 1-8

Results: *Twenty-nine (29.8%) women experienced nausea, and nine (9%) women experienced nausea and vomiting while in the post-anesthesia care unit despite close attention to the need for prophylactic antiemetic medications. Women who experienced PONV had higher levels of pain and received more opioids than those women who did not experience PONV. Women who received intravenous acetaminophen did not experience less PONV in this study. PDNV occurred more frequently than PONV, with 34 women (35%) reporting occurrence after discharge. About 13 women who did not experience PONV while in the PACU subsequently experienced PDNV after leaving the hospital, evidence for the importance of patient discharge teaching regarding these symptoms. Although clinical guidelines are necessary, our observation is that nurses in the PACU setting continuously challenge themselves to individualize the com-*

Bröstkirurgi(n=97).

30%

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Landstinget Västernorrland

EJA

Eur J Anaesthesiol 2016; **33**:743–749

ORIGINAL ARTICLE

Validation of a prediction model for post-discharge nausea and vomiting after general anaesthesia in a cohort of Swedish ambulatory surgery patients

Jakob Walldén, Jesper Flodin and Magnus Hultin

Dagkirurgiska patienter (n=431).
Sundsvall och Sunderbyn 2012-2015

32 %

Table 2 Risk of nausea and/or vomiting in each time interval

Post-anaesthesia care unit	Immediately postsurgery, after discharge, until Day 1 (noon)	Postop. Day 1 (noon)–Day 2 (noon)	Postop. Day 2 (noon) – Day 3 (noon)	Nausea	Vomiting	Nausea and/or vomiting	*Nausea and/or Vomiting in the dataset published by Apfel et al.*[6]
PACU				16.9%	6.0%	18.8%	*20.7%*
	DPS			20.9%	6.3%	22.7%	*28.8%*
		D1-D2		9.3%	1.6%	9.7%	*12.5%*
			D2-D3	7.2%	0.5%	7.4%	ND
Day of Surgery (D1)				29.5%	10.2%	32.3%	*38.5%*
Postoperative period until D2				32.7%	11.4%	36.0%	*44.8%*
Postoperative period until D3				33.6%	11.6%	36.9%	ND
	Postdischarge until D2			24.6%	7.7%	26.9%	*37.1%*
	Postdischarge until D3			24.6%	6.7%	28.1%	ND

The comparisons with the cohort published by Apfel *et al.*[6] are estimates as the observation intervals are not exactly the same. D1-D2, postoperative day 1 (approximately 24–48 h after surgery); D2-D3, postoperative day 2 (approximately 48–72 h after surgery); DPS, immediate postsurgical day (approximately 0–24 h after surgery); PACU, post-anaesthesia care unit; ND, no data.

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Landstinget Västernorrland

Singapore Med J 2015; 56(1): 40-46
doi: 10.11622/smedj.2015008

How patients fare after anaesthesia for elective surgery: a survey of postoperative nausea and vomiting, pain and confusion

Yun Zhi Lee[1], MBBS, *Ruth Qianyi Lee*[1], MBBS, *Kyu Kyu Thinn*[2], MBBS, *Keah How Poon*[1], MBBS, MMed, *Eugene Hern Choon Liu*[2], MD, FRCA

INTRODUCTION Postoperative nausea and vomiting (PONV), and postoperative pain are common during the early postoperative period. In addition to these problems, elderly patients risk developing postoperative confusion. This study aimed to identify the risk factors associated with these problems, and the extent of these problems, in a Singapore inpatient surgical population.

RESULTS The incidence of PONV was 31.8% [illegible] eral [illegible] with increasing Apfel score ($p < 0.001$) and were higher in female patients (odds ratio [OR] 1.74, 95% CI 1.28–2.36), non-smokers (OR 1.72, 95% CI 1.04–2.88), patients with a history of PONV and/or motion sickness (OR 3.45, 95% CI 2.38–5.24), patients who received opioids (OR 1.39, 95% CI 1.03–1.88), and patients who received general anaesthesia (OR 1.76, 95% CI 1.11–2.79). Moderate to severe pain at rest and with movement were reported in 19.9% and 52.5% of patients, respectively. Among the patients who were predicted to experience mild pain, 29.5% reported moderate pain and 8.1% reported severe pain. The prevalence of postoperative confusion was 3.9% in the geriatric population.

CONCLUSION Higher Apfel scores were associated with a higher risk of PONV and multimodal treatment for postoperative pain management was found to be insufficient. The incidence of postoperative confusion was low in this study.

Keywords: postoperative confusion, postoperative delirium, postoperative nausea and vomiting, postoperative pain, postoperative sore throat

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Landstinget Västernorrland

Anesthesiology 2012; 117:475–86

Who Is at Risk for Postdischarge Nausea and Vomiting after Ambulatory Surgery?

Christian C. Apfel, M.D., Ph.D.,* Beverly K. Philip, M.D.,† Ozlem S. Cakmakkaya, M.D.,‡

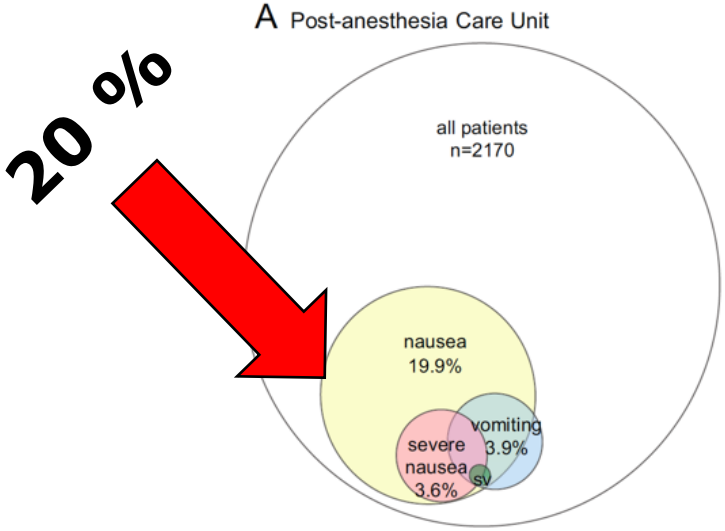

Fig. 1. Percentage of patients who experienced nausea and/o
charge. The incidence of severe vomiting (SV) in the postanses

Anesthesiology 2012; 117:475–86

Who Is at Risk for Postdischarge Nausea and Vomiting after Ambulatory Surgery?

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20 %

Hemma 37 %

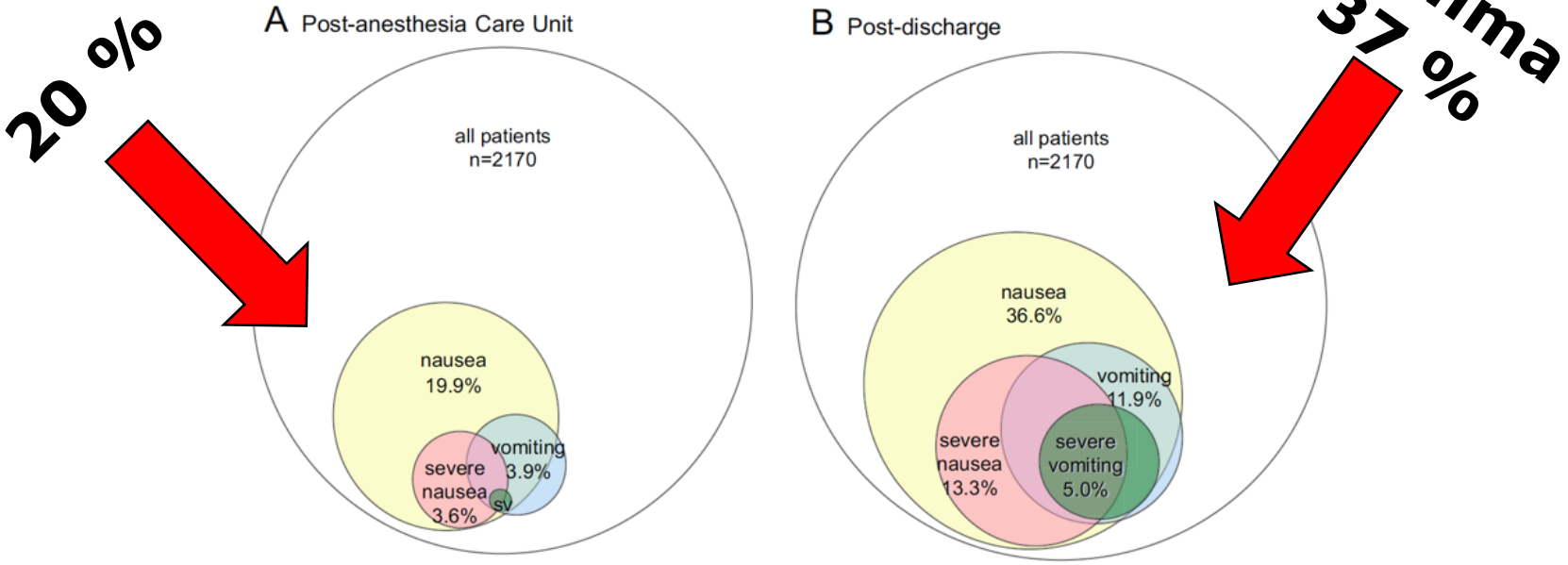

Fig. 1. Percentage of patients who experienced nausea and/or vomiting (*A*) in the postanesthesia care unit and (*B*) postdischarge. The incidence of severe vomiting (SV) in the postansesthesia care unit was 0.2%.

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Landstinget Västernorrland

PONV är ett problem idag.

Hur ska vi hantera det?

Landstinget Västernorrland

Anesth Analg 2014;118:85-113

CME

Consensus Guidelines for the Management of Postoperative Nausea and Vomiting

Tong J. Gan, MD, MHS, FRCA,* Pierre Diemunsch, MD, PhD,† Ashraf S. Habib, MB, FRCA,* Anthony Kovac, MD,‡ Peter Kranke, MD, PhD, MBA,§ Tricia A. Meyer, PharmD, MS, FASHP,‖ Mehernoor Watcha, MD,¶ Frances Chung, MBBS,# Shane Angus, AA-C, MS,** Christian C. Apfel, MD, PhD,†† Sergio D. Bergese, MD,‡‡ Keith A. Candiotti, MD,§§ Matthew TV Chan, MB, BS, FANZCA,‖‖ Peter J. Davis, MD,¶¶ Vallire D. Hooper, PhD, RN, CPAN, FAAN,## Sandhya Lagoo-Deenadayalan, MD, PhD,*** Paul Myles, MD,††† Greg Nezat, CRNA, CDR, USN, PhD,§§§ Beverly K. Philip, MD,‖‖‖ and Martin R. Tramèr, MD, DPhil¶¶¶

Publicerad 2014
Expertgruppsutlåtande

Tidigare versioner 2003 och 2007

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Landstinget Västernorrland

Bakgrund

Riskfaktorer

Riskvärdering

Interventioner/strategier

Hur funkar det i verkligheten?

Landstinget Västernorrland

Riskfaktorer PONV hos vuxna

RISKFAKTOR	Odds Ratio (OR)
Kvinnligt kön	2.57 (2.32-2.84)
Tidigare PONV	2.09 (1.90-2.29)
Icke rökare	1.82 (1.68-1.98)
Rörelsesjuka	1.77 (1.55-2.04)
Ålder (per decennium)	0.88 (0.84-0.92)
Inhalationsanestetika per timme	1.46 (1.30-1.63)
Postoperativa opioider	1.47 (1.31-1.65)
Lustgas	1.45 (1.31-1.65)
Ålder <50 år	1.79 (1.39-2.30)
Cholecystectomy	1.90 (1.36-2.68)
Gynekologisk kirurgi	1.24 (1.02-1.52)
Laparoskopisk kirurgi	1.37 (1.07-1.77)
Intraoperativa opioider	svag

Umeå Universitet

Landstinget Västernorrland

CME Consensus Guidelines for the Management of Postoperative Nausea and Vomiting

Anesth Analg 2014;118:85-113

PDNV

Anesthesiology 2012; 117:475–86

Who Is at Risk for Postdischarge Nausea and Vomiting after Ambulatory Surgery?

Christian C. Apfel, M.D., Ph.D.,* Beverly K. Philip, M.D.,† Ozlem S. Cakmakkaya, M.D.,‡

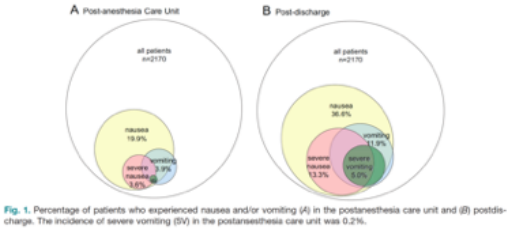

Fig. 1. Percentage of patients who experienced nausea and/or vomiting (A) in the postanesthesia care unit and (B) postdischarge. The incidence of severe vomiting (SV) in the postanesthesia care unit was 0.2%.

RISKFAKTOR	Adjusted OR (95% CI)
Kvinna	1.54 (1.22-1.94)
< 50 år	2.17 (1.75-2.69)
PONV anamnes	1.50 (1.19-1.88)
Opioider UVA	1.93 (1.53-2.43)
Illamående UVA	3.79 (3.00-4.04)

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Landstinget Västernorrland

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Landstinget Västernorrland

Simplified PONV-score, Apfel Score

Kvinna

Icke-rökare

Tidigare PONV o/e åksjuka

Postoperativa opioider

Apfel et al, 1999

CME **Consensus Guidelines for the Management of Postoperative Nausea and Vomiting**
Anesth Analg 2014;118:85-113

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Landstinget Västernorrland

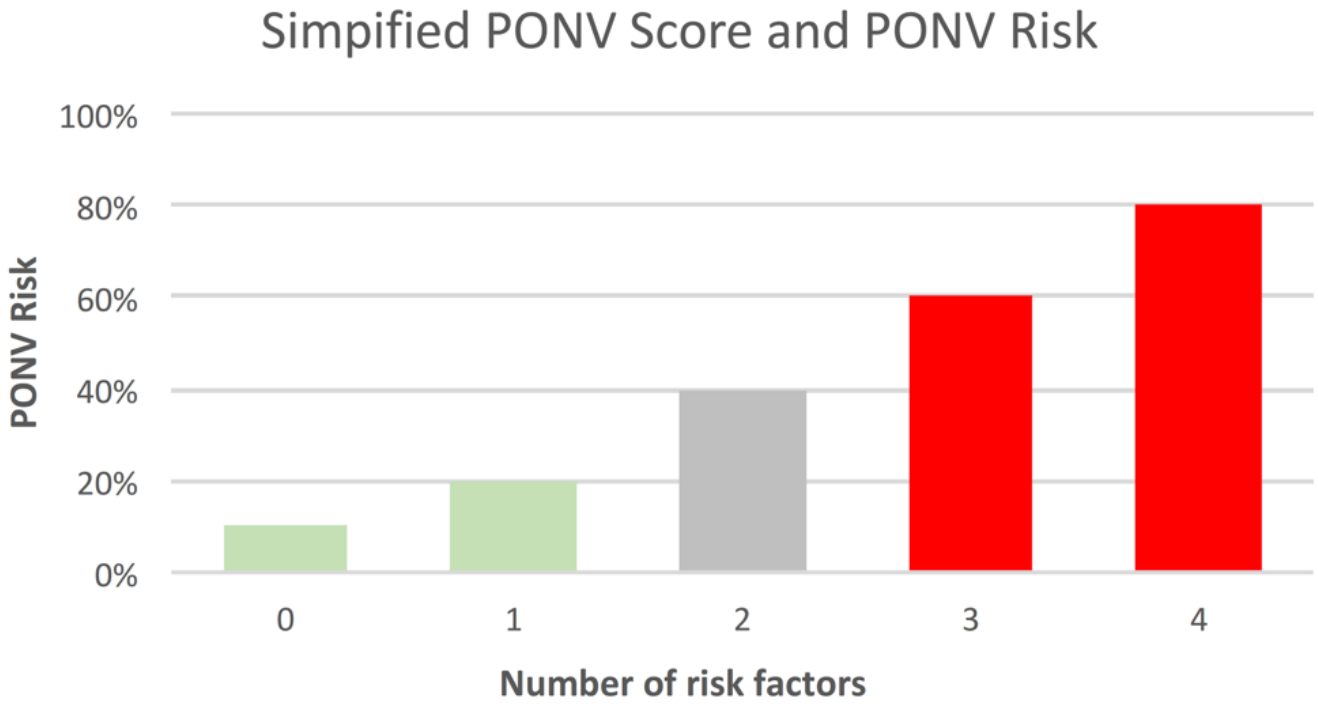
Simplified PONV-score, Apfel Score

Kvinna

Icke-rökare

Tidigare PONV o/e åksjuka

Postoperativa opioider



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Landstinget Västernorrland

Riskvärdering PDNV

Kvinnligt kön

Anamnes PONV

Ålder < 50 år

Opioider på uppvaket

Illamående på uppvaket

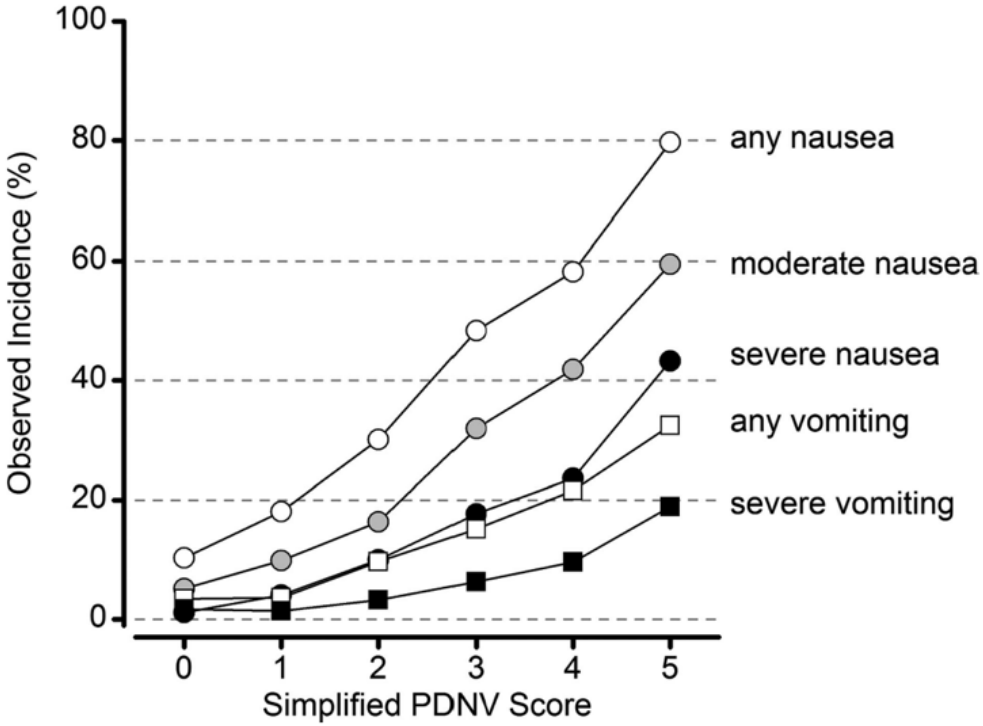


Fig. 6. Relationship between the simplified postdischarge nausea and vomiting (PDNV) risk score and the incidence of PDNV in the validation dataset.

Anesthesiology 2012; 117:475-86

Riskvärdering PDNV

Kvinnligt kön

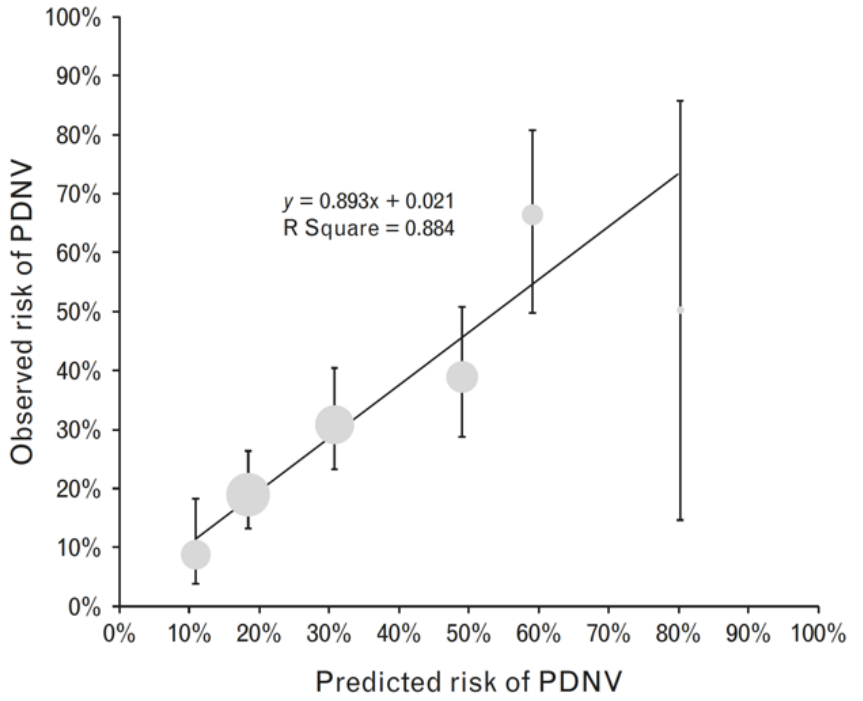
Anamnes PONV

Ålder < 50 år

Opioider på uppvaket

Illamående på uppvaket

Fig. 3



Walldén *et al.*
Eur J Anaesthesiol 2016; **33**:743–749

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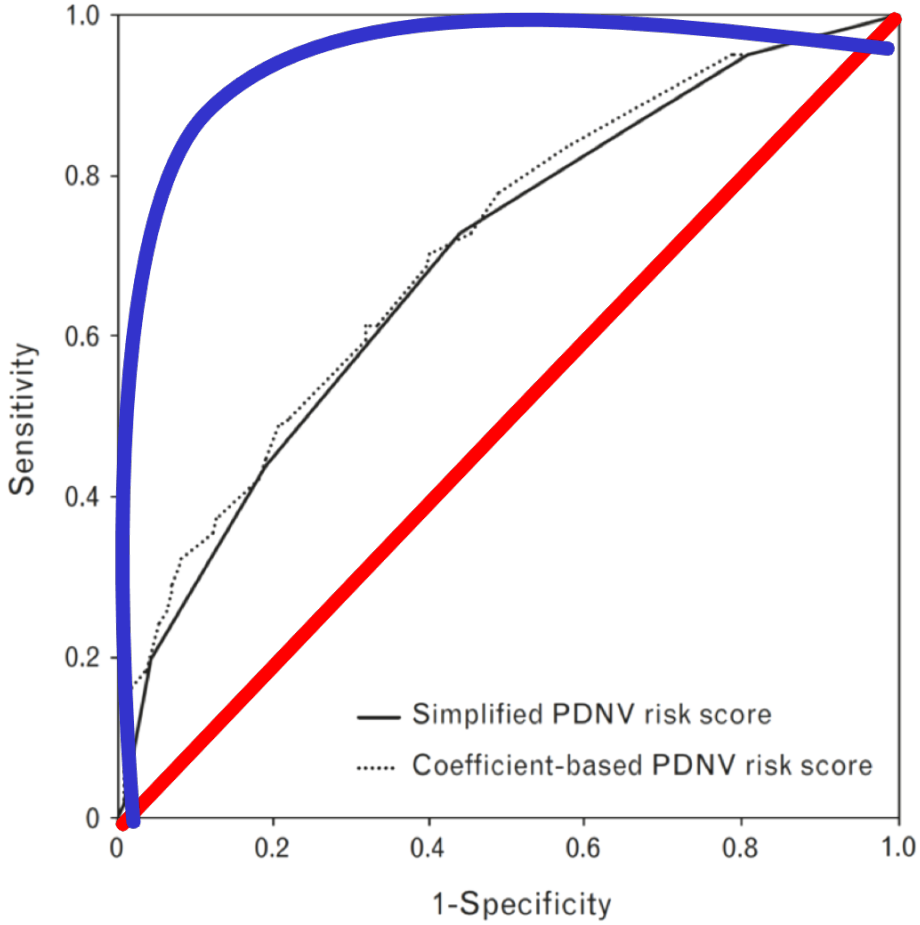
Landstinget Västernorrland

Träffsäkerhet?

Fig. 2



Receiver-operating characteristic curve in the Swedish validation cohort ($n = 428$). Coefficients calculated from the original development dataset[6] were used for the coefficient-based PDNV risk. PDNV, post-discharge nausea and vomiting.

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Landstinget Västernorrland

Bakgrund

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Hur funkar det i verkligheten?

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Landstinget Västernorrland

Förebygga PONV

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Adressera faktorerna!

Table 1. PONV Risk Factors in Adults

Patient Specific	Anesthesia Related	Surgery Related
• Female gender • Children • Younger than 50 years • Nonsmoking status • History of PONV and/or motion sickness	• Volatile agents (desflurane, isoflurane, and sevoflurane) • General vs regional • Nitrous oxide • Postoperative opioids	• Duration • Postoperative opioid use • Type of surgery: cholecystectomy, gynecologic, and laparoscopic procedures

PONV, postoperative nausea and vomiting.

Journal of PeriAnesthesia Nursing, Vol 30, No 5 (October), 2015: pp 406-417

Landstinget Västernorrland

Multimodal Smärtbehandling

Reducera opiater!

Landstinget Västernorrland

Consensus Guidelines for the Management of Postoperative Nausea and Vomiting

Anesth Analg 2014;118:85-113

Omhändertagandet!

Anpassa anestesi

Regional anestesi istället för generell anestesi

Använd propofol för induktion och underhåll

Undvik lustgas

Undvik inhalationsanestetika

Minimera intraoperativa och postoperativa opioider

Adekvat hydrering

CME Consensus Guidelines for the Management of Postoperative Nausea and Vomiting

Anesth Analg 2014;118:85-113

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Landstinget Västernorrland

Profylaxportföljen

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 JUNE 10, 2004 VOL. 350 NO. 24

A Factorial Trial of Six Interventions for the Prevention of Postoperative Nausea and Vomiting

Christian C. Apfel, M.D., Kari Korttila, F.R.C.A., Ph.D., Mona Abdalla, Ph.D., Heinz Kerger, M.D., Alparslan Turan, M.D., Ina Vedder, M.D., Carmen Zernak, M.D., Klaus Danner, M.D., Ritva Jokela, M.D., Ph.D., Stuart J. Pocock, Ph.D., Stefan Trenkler, M.D., Markus Kredel, M.D., Andreas Biedler, M.D., Daniel I. Sessler, M.D., and Norbert Roewer, M.D., for the IMPACT Investigators*

	Riskreduktion PONV
5-HT3 antagonister	25%
Dopamin-2 antagonister	
Steroider	
Antihistaminer	
NK1-receptorantagonister	
Propofol	
Icke-farmakologiska (P6-stim)	

Kombinerar vi ger det en **ADDITIV** effekt.

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Landstinget Västernorrland

Vilken profylax ska vi välja?

Balans mellan PONV-effekt och biverkningar

Kostnad

Landstinget Västernorrland

Balans mellan PONV-effekt och biverkningar.

	Riskreduktion	Biverkningar
5-HT3 antagonister		Huvudvärk, leverpåverkan
Dopamin-2 antagonister		Trötthet, myrkrypningar
Steroider	25%	Sårläkning, blodsocker, konfusion
Antihistaminer		Trötthet

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Landstinget Västernorrland

När ska vi ge profylax?

Farmakokinetik

Steroider i början av operation
5HT3 och D2-antagonister i slutet av op.

Landstinget Västernorrland

5-HT3 antagonister

Andra generationen

Palonosetron

Aloxi ® 75 µg i.v.

Halveringstid 40 timmar.

Effektivare än Ondansetron.

Registrerat för CINV (Cytostatika Induced Nausea and Vomiting)

Pris: Ampull i.v. 250 µg 699 kronor.

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Landstinget Västernorrland

NK1-receptor antagonist

Aprepitant

Emend ® oralt 40-80 mg

Halveringstid 40 timmar

Mekanism: Neuron i kräkreflex i NTS.

Likvärdigt/bättre än ondansetron 0-24 h.

Bättre än Ondansetron 24-48 h.

Liten klinisk erfarenhet i PONV-sammanhang

Registrerat för CINV (Cytostatika Induced Nausea and Vomiting)

Pris: Kapsel 200 kronor.

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Landstinget Västernorrland

Steroider

Dexamethasone

Metylprednisolon

Betamethasone

Mekanism: Antiinflammatorisk. Direkt effekt NTS?

4 (– 8 mg): Ges i början av operationen.
Likvärdig effekt som Ondansetron och Droperidol.

Andra effekter:	8 mg bättre återhämtning och smärtlindring.
Nackdelar?:	Sårinfektion – inga evidens för ökad risk
	Sockerkontroll – högre men oklart betydelse
	Kognitiv dysfunktion – vid höga doser (0.2 mg/kg)?

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Landstinget Västernorrland

Propofol

Mekanism: ?

Antiemetisk effekt i låg dos
(10% av anestesidos).

Som del i TIVA riskreduktion PONV 20-25%.

Metaanalys [TIVA] *vs* [Gas + 1 profylax]

- *Ingen skillnad tidig PONV*
- *Ökad risk för sen PONV i TIVA-grupp.*

EJA

Eur J Anaesthesiol 2016; **33:**750–760

ORIGINAL ARTICLE

Total intravenous anaesthesia versus single-drug pharmacological antiemetic prophylaxis in adults

A systematic review and meta-analysis

Maximilian S. Schaefer*, Peter Kranke*, Stephanie Weibel, Robert Kreysing and Peter Kienbaum

BACKGROUND Postoperative nausea and vomiting (PONV) are among the most unfavourable anaesthetic outcomes attributed to the administration of inhaled anaesthetics. Accordingly, inhaled anaesthetics are frequently substituted by propofol when patients are at risk of PONV. As, on some occasions, inhalational anaesthesia may be favourable, the relative impact of propofol anaesthesia needs to be established based on robust data.

OBJECTIVE To compare the effectiveness of a single-drug pharmacological prophylaxis with total intravenous anaesthesia (TIVA) for prevention of PONV.

DESIGN Systematic review of randomised controlled trials with meta-analyses.

DATA SOURCES All available studies until 29 April 2015 were retrieved from *MEDLINE*, *CENTRAL* and *EMBASE*.

ELIGIBILITY CRITERIA Randomised controlled trials on adult patients undergoing general anaesthesia with at least one group receiving propofol-based intravenous anaesthesia without further antiemetic prophylaxis, and one group receiving inhalational anaesthesia with single-drug antiemetic prophylaxis.

RESULTS Fourteen studies involving 2051 patients were included. Compared with TIVA, after inhalational anaesthesia and single-drug antiemetic prophylaxis, there was no difference in the overall risk of PONV [relative risk (RR) 1.06, 95% confidence interval (CI) 0.85; 1.32, GRADE rating moderate], nor was there any difference in the risk of postoperative vomiting (RR 1.17, 95% CI 0.78; 1.76), need for rescue medication (RR 1.16, 95% CI 0.68; 1.99) or early PONV (RR 1.06, 95% CI 0.88; 1.27). However, TIVA was associated with an increased risk of late PONV (RR 1.41, 95% CI 1.10; 1.79, $P=0.006$). Six studies investigated other side-effects associated with anaesthesia and found no differences between the two groups. Finally, there was evidence of a publication bias that included smaller studies favouring TIVA.

CONCLUSION This meta-analysis confirms the results from indirect comparisons in individual studies: instead of substituting inhalational anaesthesia with propofol-based TIVA, a similar antiemetic effect can be achieved by adding single-drug pharmacological prophylaxis to the inhalational anaesthetic.

STUDY REGISTRATION This systematic review with meta-analysis was registered at PROSPERO (www.crd.york.ac.uk/PROSPERO), study number CRD42015019571.

Published online 2 August 2016

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Landstinget Västernorrland

Alfa-2-Agonister

Clonidine

Dexmedetomidine

Metaanalys

Svag och kortlivad antiemetisk effekt av alfa-2 agonister (Blaudzun et al Anesthesiology 2012;116:1312-22)

RCT

Dex reducerar tidigt illamående (Geng et al EJA, 2016, 33:761-766)

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Landstinget Västernorrland

Midazolam

2 mg vid operationsslut lika effektivt som Ondansetron 4 mg och Dexamethasone.

Två metaanalyser publicerade 2016 visat att peroperativt givet midazomal reducerar PONV.

(Ahn et al och Grant et al; Anesth Anal 2016 122(3))

Konklusion i Editorial: Relevant antiemetisk effekt.
Oklart om påverkan på sedering.
Ännu inte enbart för PONV-effekt.

(Habib et al, Anesth Analg 2016 122(3))

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Landstinget Västernorrland

Förenklad algoritm a la Wallden enligt Consensus guidelines 2014

Riskfaktorer	Perioperativa överväganden	Riskvärdering Ge minst:	Profylax
Apfel Score **0** **1** **2** **3** **4**	***Generell /Regional*** ***Inhalation / TIVA*** ***Opioider*** ***Ingreppstyp*** ***Analgesi*** ***Patientens önskemål*** ***Kostnadseffektivitet***	**Låg risk** **Ingen profylax** **Måttlig risk** **1-2 profylax** **Hög risk** **2 eller mer profylax**	 **Betamethason** **Ondansetron** **Droperidol** **TIVA**

Landstinget Västernorrland

Behandling av etablerat PONV

Gå på annan receptor än profylax!

1:a hand Ondansetron 1-4 mg iv.

Upprepa inte < 6 timmar (Ondansetron, Dridol)

Upprepa inte steroider opdygnet.

Mobilisering! Aktivera patienten!

Landstinget Västernorrland

CME Consensus Guidelines for the Management of Postoperative Nausea and Vomiting
Anesth Analg 2014;118:85-113

Hantering av PostDischargeNV

PDNV är ett problem (25-40%?)

Fåtal studier

Kombinationer bättre än monoterapi
Långverkande preparat bättre än kortverkande
Profylax perop + profylax postop bättre än enbart profylax perop.

Plats för långverkande preparat som Aprepitant och Palonosetron?

Håll koll på dina patienter på UVA/Postop!

Använda riskvärderingen PDNV och ge profylax vid hemgång?

Landstinget Västernorrland

Consensus Guidelines for the Management of Postoperative Nausea and Vomiting
Anesth Analg 2014;118:85-113

Bakgrund

Riskfaktorer

Riskvärdering

Interventioner/strategier

Hur funkar det i verkligheten?

Landstinget Västernorrland

INVITED COMMENTARY

Effective management of postoperative nausea and vomiting: let us practise what we preach!

Peter Kranke

European Journal of Anaesthesiology 2011, 28:152–154

The *Big-little problem* idag är inte PONV i sig utan implementeringen av kunskapen runt PONV så att det kommer patienten till nytta.

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Landstinget Västernorrland

Franck M, Radtke FM, Baumeyer A, *et al.* Adherence to treatment guidelines for postoperative nausea and vomiting. How well does knowledge transfer result in improved clinical care? *Anaesthesist* 2010; **59**:524–528.

76,6%

Tab. 1

Risiko	SOP-Behandlung Konformität/Abw ung	Anteil in %	PONV-Inzidenz (%) AWR	p	24 h	p
Niedrig (n=725)	Untertherapiert	0				
	Konform therapiert	92,1	8,5	0,951	16,2	0,07
	Übertherapiert	7,9	8,8		33,3	
Mittel n=1050	Untertherapiert	58,6	11,8	0,043	21,1	52
	Konform therapiert	35,6	5,6		22,5	
	Übertherapiert	5,2	7,1		35,7	
Hoch n=954	Untertherapiert	76,6	19,4	0,045	52,3	0,004
	Konform therapiert	23,4	13,0		22,2	
	Übertherapiert	0				

AWR AWR, SOP „standard operating procedure".

52%

22%

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Med om man systematisk lägger till riskvärdering?

Landstinget Västernorrland

British Journal of Anaesthesia **108** (6): 961–5 (2012)
Advance Access publication 29 February 2012 · doi:10.1093/bja/aes024

BJA

Automated reminders decrease postoperative nausea and vomiting incidence in a general surgical population

F. O. Kooij[1,2], N. Vos[2], P. Siebenga[2], T. Klok[2], M. W. Hollmann[1*] and J. E. Kal[2]

Results. In the control period, 981 patients, of whom 378 (29%) were high-risk patients, received general anaesthesia. Overall, 264 (27%) patients experienced PONV within 24 h. In the support period, 1681 patients, of whom 525 (32%) had a high risk for PONV, received general anaesthesia. In this period, only 378 (23%) patients experienced PONV within 24 h after operation. This difference is statistically significant (P=0.01).

27% -> 23%

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Landstinget Västernorrland

(ANESTHESIOLOGY 2014; 120:343-54)

Impact of Risk Assessments on Prophylactic Antiemetic Prescription and the Incidence of Postoperative Nausea and Vomiting

A Cluster-randomized Trial

Teus H. Kappen, M.D., Karel G.M. Moons, Ph.D., Leo van Wolfswinkel, M.D., Ph.D.,
Cornelis J. Kalkman, M.D., Ph.D., Yvonne Vergouwe, Ph.D., Wilton A. van Klei, M.D., Ph.D.

43 %

41 %

Methods: A single-center, cluster-randomized trial was performed in 12,032 elective surgical patients receiving esthesia from 79 anesthes gists. Anesthesiologists were randomized to either exposure or nonexposure to automated calculations for PONV (without patient-specific recommendations on prophylactic antiemetics). Anesthesiologists who ted less

Results: There were no differences in PONV incidence between allocation groups (crude incidence intervention group 41%, care-as-usual group 43%; odds ratio, 0.97; 95% CI, 0.87–1.1; risk-dependent odds ratio, 0.92; 95% CI, 0.80–1.1). Nevertheless, intervention-group anesthesiologists administered more prophylactic antiemetics (rate ratio, 2.0; 95% CI, 1.6–2.4) and more risk-tailored than care-as-usual–group anesthesiologists (risk-dependent rate ratio, 1.6; 95% CI, 1.3–2.0).

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Landstinget Västernorrland

British Journal of Anaesthesia **114** (2): 252–60 (2015)
Advance Access publication 1 October 2014 · doi:10.1093/bja/aeu321

BJA

Impact of adding therapeutic recommendations to risk assessments from a prediction model for postoperative nausea and vomiting†

T. H. Kappen[1*], Y. Vergouwe[2,3], L. van Wolfswinkel[1], C. J. Kalkman[1], K. G. M. Moons[1,2] and W. A. van Klei[1]

Results. During the intervention period anaesthetists administered 0.5 [95% confidence intervals (CIs): 0.4–0.6] more antiemetics for patients identified as being at greater risk of PONV. This directive approach led to a reduction in PONV [odds ratio (OR): 0.60, 95% CI: 0.43–0.83], when directly [illegible] PONV in high-risk patients (OR: 0.45, 95% CI: 0.28–0.72).

Conclusions. Anaesthetists administered more prophylactic antiemetics when a directive approach was used for risk-tailored intervention compared with care-as-usual. In contrast to the previously studied assistive approach, the increase in PONV prophylaxis now resulted in a lower PONV incidence, particularly in high-risk patients. When one aims for a truly 'PONV-free hospital', a more liberal use of prophylactic antiemetics must be accepted and lower-risk thresholds should be set for the actionable recommendations.

The directive approach led to a reduction in PONV

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Landstinget Västernorrland

Barriers and facilitators perceived by physicians when using prediction models in practice

Teus H. Kappen[a,*], Kim van Loon[a], Martinus A.M. Kappen[a], Leo van Wolfswinkel[a], Yvonne Vergouwe[b,c], Wilton A. van Klei[a], Karel G.M. Moons[a,b], Cor J. Kalkman[a]

Journal of Clinical Epidemiology 70 (2016) 136–145

Results: Although the prediction tool made physicians more aware of PONV prevention, the physicians reported **three barriers** to use predicted risks in their decision making. PONV was **not considered an outcome of utmost importance**; decision making on PONV prophylaxis was mostly **intuitive rather than risk based;** prediction models **do not weigh benefits and risks** of prophylactic drugs.

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Liberalt med profylax till alla?

Pro: Mycket till alla!

(Scuderi Editorial A&A 2010, Kranke 2016 EJA)

Emot: Biverkningar…

CME **Consensus Guidelines for the Management of Postoperative Nausea and Vomiting**

Anesth Analg 2014;118:85-113

INVITED COMMENTARY

Predictive risk scores for post-discharge nausea and vomiting

Simple lessons learned for improving clinical practice

Yvonne Jelting, Leopold Eberhart and Peter Kranke

European Journal of Anaesthesiology 2016, 33:705–707

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Sammanfattning

PONV/PDNV är ett problem.

Känn till riskfaktorer för PONV och PDNV!

Ge (liberalt med) profylax efter risk!
Skräddarsy anestesi vb!

Implementera till rutin!

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