

# Dual NK1-5HT3 Antiemetic Prophylaxis Improves Patient Satisfaction Following Metabolic Bariatric Surgery: A Randomised Controlled Trial

ERAS Protocols in MBS: Recovery Optimisation and Outcome Improvement

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# Disclosure of Conflict of Interests

- No conflicts to disclose



# PONV is a barrier to ERAS Recovery



Postoperative Nausea and Vomiting (PONV) affects >2/3 of Metabolic Bariatric Surgery (MBS) patients

Impairs oral intake, increases symptom burden, complication rate, treatment cost  
Current prophylaxis insufficient



**Akynzeo:** netupitant (neurokinin-1 (NK1) receptor antagonist) and palonosetron (serotonin (5HT-3) receptor antagonist)

Effective and long-lasting antiemetic for chemotherapy-induced nausea and vomiting



Primary aim: determine whether Akynzeo reduces PONV incidence at 24h

# Study Design: Interim Analysis of Prospective RCT

|                  | <b>Control n=74</b><br>- LSG n=42<br>- RYGB n=32 | Standardised perioperative<br>care                                                                                                                                      | <b>Intervention n=70</b><br>- LSG n=42<br>- RYGB n=28   |
|------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Preoperatively   |                                                  |                                                                                                                                                                         | Akynzeo<br>(Netupitant 300 mg /<br>Palonosetron 0.5 mg) |
| Intraoperatively | Ondansetron 8mg                                  | <ul style="list-style-type: none"> <li>TIVA-based anaesthesia</li> <li>Dexamethasone 8mg +<br/>cyclizine 25mg</li> <li>Standardised multimodal<br/>analgesia</li> </ul> |                                                         |
| Postoperatively  | Ondansetron 8mg<br>TDS for 24h                   | <ul style="list-style-type: none"> <li>Cyclizine 25mg TDS for 24h</li> <li>Standardised multimodal<br/>analgesia</li> </ul>                                             |                                                         |
| As needed        |                                                  | <ul style="list-style-type: none"> <li>Rescue antiemetics</li> <li>Rescue analgesia</li> </ul>                                                                          |                                                         |

**Primary outcome:**  
 PONV at POD1 (24h)

**Secondary outcomes:**  
 PONV Incidence, Nausea  
 Severity,  
 Rescue Antiemetic Use,  
 Patient Satisfaction,  
 Length of Stay (LOS),  
 Quality of Recovery (QoR-  
 15),  
 Adverse Events, Treatment  
 Costs



# Akynzeo reduced PONV

## PRIMARY ENDPOINT

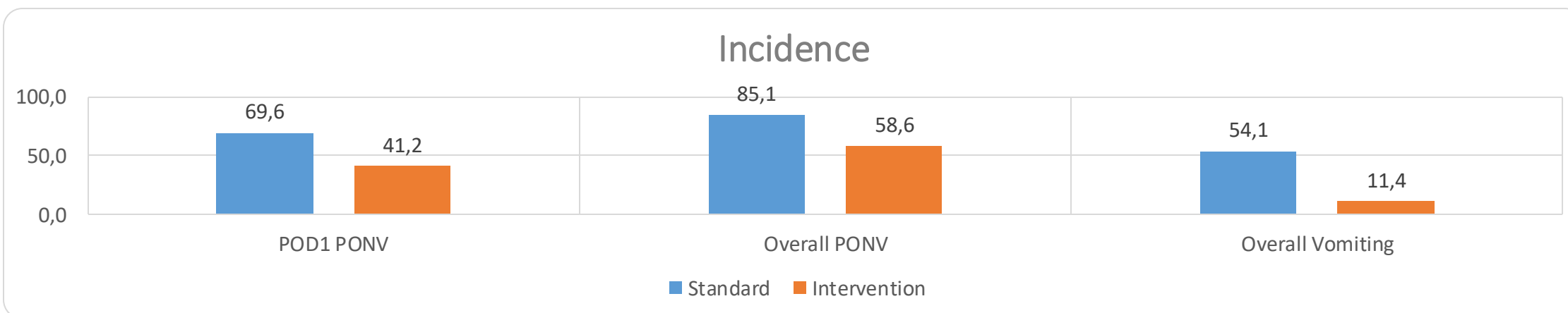
POD1 PONV  
**69.6% → 41.2%**  
RR 0.59, p<0.001

## OVERALL PONV

**85.1% → 58.6%**  
RR 0.69, p<0.001

## OVERALL VOMITING

**54.1% → 11.4%**  
RR 0.21, p<0.001



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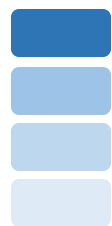
# Akynzeo reduced recovery burden; associated with higher patient satisfaction

## NAUSEA SEVERITY

Lower odds of worse nausea

**OR 0.22**

95% CI 0.12–0.42  
p<0.001



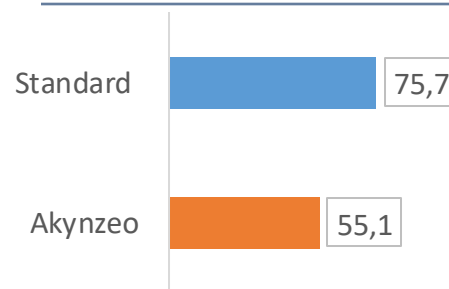
Shifted patients toward milder nausea categories.

## RESCUE ANTIEMETIC USE

**75.7% → 55.1%**

RR 0.73

95% CI 0.57–0.93  
p=0.009



## SATISFACTION

Higher odds of better satisfaction

**OR 2.13**

95% CI 1.11–4.17  
p=0.025

No clear difference in LOS, QoR-15 or adverse events between groups

Higher acquisition cost:  
+AUD\$72.67 for Akynzeo

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# Take-home

- **Findings**

- Reduced PONV incidence, nausea severity and rescue antiemetic use
- Associated with higher patient satisfaction
- No clear improvement in LOS or QoR-15, higher acquisition cost

- **Next steps**

- Formal cost-effectiveness analysis
- Validation with larger RCTs with varied anaesthetic protocols



# References

Aapro, M. *et al.* A randomized phase III study evaluating the efficacy and safety of NEPA, a fixed-dose combination of netupitant and palonosetron, for prevention of chemotherapy-induced nausea and vomiting following moderately emetogenic chemotherapy. *Annals of Oncology* **25**, 1328–1333 (2014).

Argueta, P. P. *et al.* Thirty-Day Readmission After Bariatric Surgery: Causes, Effects on Outcomes, and Predictors. *Dig Dis Sci* **67**, 834–843 (2022).

Botteman, M., Nickel, K., Corman, S., Turini, M. & Binder, G. Cost-effectiveness of a fixed combination of netupitant and palonosetron (NEPA) relative to aprepitant plus granisetron (APR + GRAN) for prophylaxis of chemotherapy-induced nausea and vomiting (CINV): a trial-based analysis. *Supportive Care in Cancer* **28**, 857 (2019).

Kleipool, S. C., Jonkman, N. H., van Rutte, P. W. J., de Castro, S. M. M. & van Veen, R. N. Safety of gastric bypass with same-day discharge: a propensity score-matched analysis of the Dutch Audit for treatment of Obesity. *Surgery for Obesity and Related Diseases* **20**, 1226–1232 (2024).

Navari, R. M. & Schwartzberg, L. S. Evolving role of neurokinin 1-receptor antagonists for chemotherapy-induced nausea and vomiting. *Onco Targets Ther* **11**, 6459 (2018).

Halliday, T. A., Sundqvist, J., Hultin, M. & Walldén, J. Post-operative nausea and vomiting in bariatric surgery patients: an observational study. *Acta Anaesthesiol Scand* **61**, 471–479 (2017).

Shirley, M. Netupitant/Palonosetron: A Review in Chemotherapy-Induced Nausea and Vomiting. *Drugs* **81**, 1331–1342 (2021).

Stoops, S. & Kovac, A. New insights into the pathophysiology and risk factors for PONV. *Best Pract Res Clin Anaesthesiol* **34**, 667–679 (2020).

Suh, S. *et al.* The impact of nausea on post-operative outcomes in bariatric surgery patients. *Surg Endosc* **34**, 3085–3091 (2020).



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