

Omitting the escalating dosage of α -adrenergic blockade before pheochromocytoma resection: Implementation of a treatment strategy in discordance with current guidelines

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Introduction

Peri-operative mortality and morbidity associated with resection of pheochromocytoma has been reduced significantly following introduction of preoperative alpha-adrenergic blockade.¹ However, the current protocol requires multiple day admission and dose escalation of alpha-blockage. Recently published retrospective data suggest equal safety using a new protocol based on intra-operative titration of alpha-blockage.²

Aim

The primary aim of this study is to assess the feasibility and safety of introduction of a new protocol without preoperative escalation of alpha-adrenergic blockade in an unselected patient group.

Methods

- This is a single institution cohort study including all patients who underwent adrenalectomy for pheochromocytoma from 2015 to 2023.
- Intraoperative hemodynamic control was regulated by active adjustment of the blood pressure by using vasoactive agents.
- Primary outcome was intra-operative hemodynamic instability defined as time weighted average (TWA) of systolic blood pressure above 200 mmHg.
- Secondary outcomes included complication rates, postoperative requirement of blood pressure support, and hospital stay.

Demographic characteristics

Patient characteristics

	α -receptor dose-escalation (n = 38)	no α -receptor dose-escalation (n = 44)	P value
Sex (F/M)	24 / 14	24 / 20	0.752
Age (yr)	54.3 \pm 20.0	56.6 \pm 13.3	0.730
Symptomatic patients (n)	25 (65.8%)	33 (75.0%)	0.519
Doxazosin dosage outpatient (mg)	4 (0-8)	6 (0-8)	0.672
Doxazosin dosage inpatient (mg)	32 (24-44)	6 (0-8)	0.000

Tumor characteristics

	α -receptor dose-escalation (n = 38)	no α -receptor dose-escalation (n = 44)	P value
Tumor size (mm)	41.0 (28.8-72.5)	48.0 (30.0-67.8)	0.527
Plasma free metanephrine level (nmol/L)	1.32 (0.25-4.83)	1.05 (0.26-5.24)	0.794
Plasma free normetanephrine level (nmol/L)	5.13 (1.80-12.00)	4.77 (1.69-11.21)	0.721
Plasma 3-MT level (nmol/L)	0.12 (0.00-0.30)	0.09 (0.00-0.18)	0.194

References

1. Keegan MT. Preoperative alpha-blockade in catecholamine-secreting tumours: fight for it or take flight? *Br J Anaesth.* 2017;118(2):145-8.
2. Groeben H, Nottebaum BJ, Alesina PF, Traut A, Neumann HP, Walz MK. Perioperative alpha-receptor blockade in pheochromocytoma surgery: an observational case series. *Br J Anaesth.* 2017;118(2):182-9.

Conclusion

Data suggest that adrenalectomy for pheochromocytoma with de-escalated preoperative alpha-adrenergic blockade protocol in an unselected patient group is safe and feasible and results in shorter length of hospital stay.

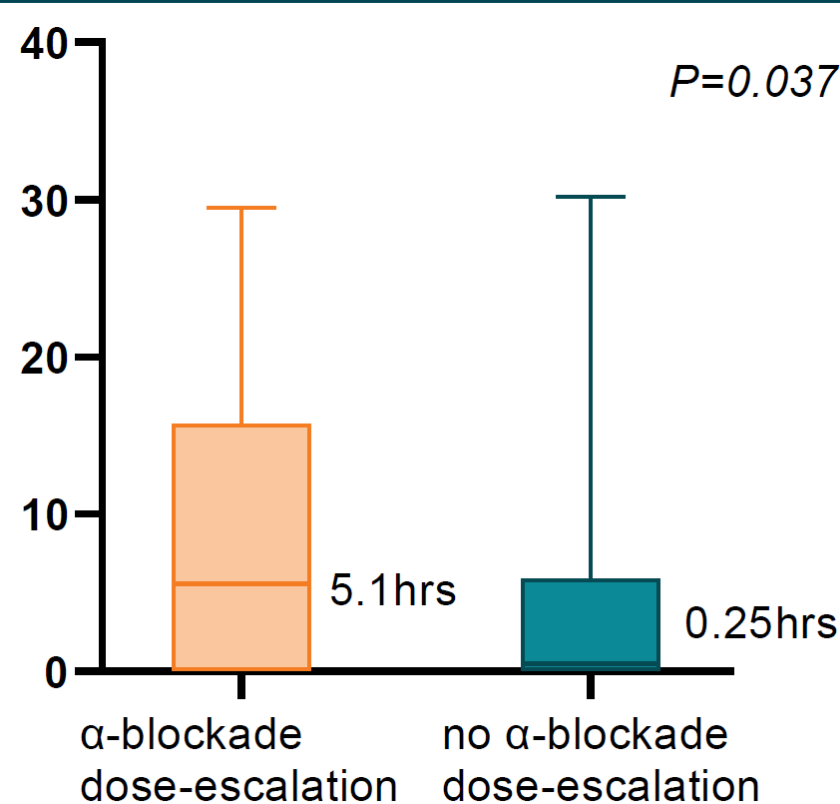
Results

In both groups, no perioperative and postoperative complications related to hemodynamic instability were observed.

Intraoperative data

	α -receptor dose-escalation (n = 38)	no α -receptor dose-escalation (n = 44)	P value
TWA-SBP > 200 mmHg	0.00	0.01	0.073
Incidence (n)	11 (28%)	22 (50.0%)	0.057
Duration (min)	0.0	0.5	0.057
Depth/min (mmHg/min)	0.0	1.0	0.139

Postoperative noradrenalin duration (hrs)



Total hospital stay (days)

