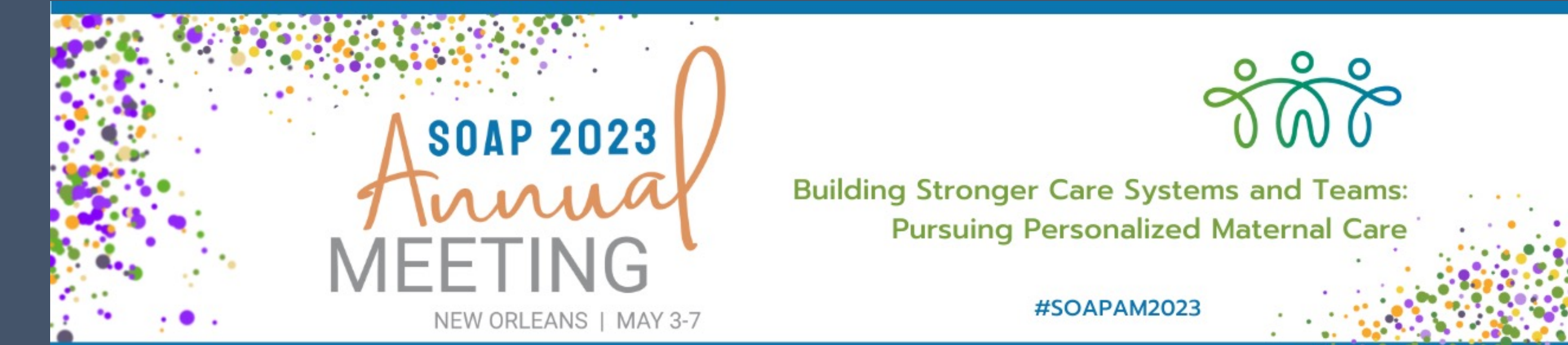


The Incidence of Prolonged Bradycardia Following Phenylephrine infusion for Cesarean Section: A Retrospective Analysis



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BACKGROUND:

- ❖ Since Ngan Kee's study of prophylactic phenylephrine infusion for prevention of hypotension in cesarean section, phenylephrine infusion has been accepted as a safe and effective means of preventing hypotension following spinal anesthesia (1, 2).
- ❖ In 2019 - Our department adopted this technique (Dose: Start at 50 mcg/min and titrated to effect) as a standard of care.
- ❖ Shortly thereafter we became aware of an increased incidence of persistent postoperative maternal bradycardia alarming the PACU nurses and even leading to occasional cardiac consultation and admission to telemetry.
- ❖ Baroreceptor induced reflex bradycardia is a well-documented response to phenylephrine's vasoconstrictive and hypertensive effects.
- ❖ However, the duration of this response is less well documented. We sought to determine the incidence and duration of postoperative bradycardia before and after the adoption of a continuous phenylephrine infusion.



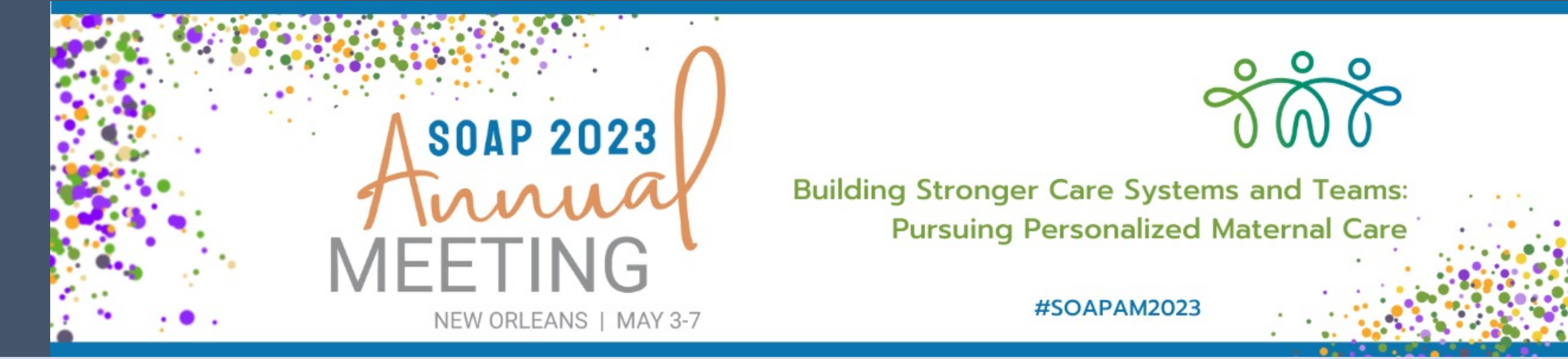
REFERENCES:

- 1 - Kinsella, S.M., Carvalho, B., Dyer, R.A., Fernando, R., McDonnell, N., Mercier, F.J., Palanisamy, A., Sia, A.T.H., Van de Velde, M., Vercueil, A. and (2018), International consensus statement on the management of hypotension with vasopressors during caesarean section under spinal anaesthesia. *Anaesthesia*, 73: 71-92.
- 2 - Ngan Kee WD, Khaw KS, Ng FF, Lee BB. Prophylactic phenylephrine infusion for preventing hypotension during spinal anesthesia for cesarean delivery. *Anesth Analg*. 2004 Mar;98(3):815-21, table of contents. PMID: 14980943.

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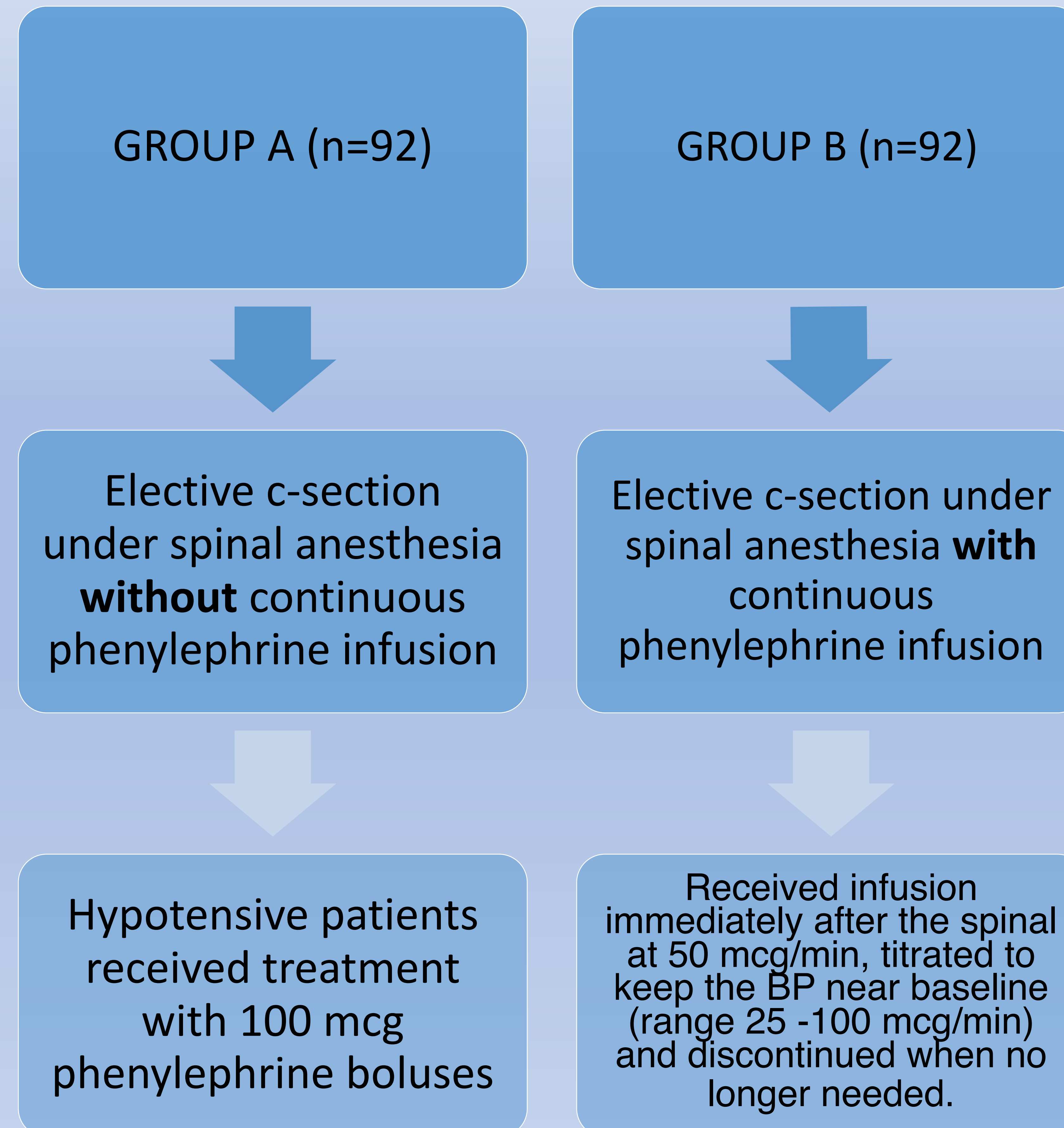


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METHODS:

- ❖ We compared data from 184 patients that underwent spinal for elective c-section. 92 patients in Group A (without infusion) and 92 Group B (with infusion).
- ❖ All patients received bupivacaine 1.6 ml with fentanyl 10 mcg and morphine 150 mcg.
- ❖ Patients on rate controlling meds were excluded.
- ❖ Phenylephrine drips were discontinued prior to leaving the OR in Group B.

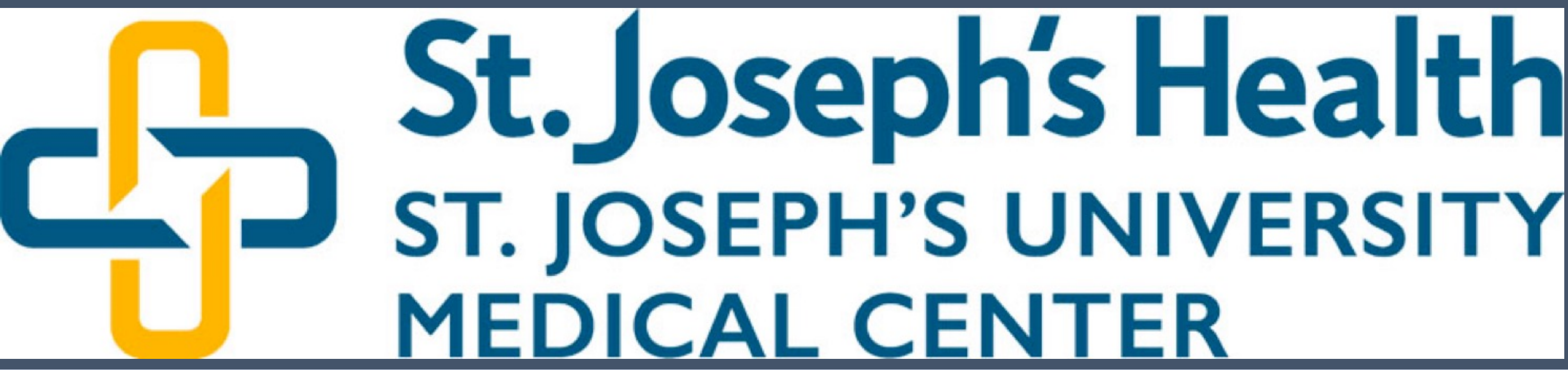


RESULTS:

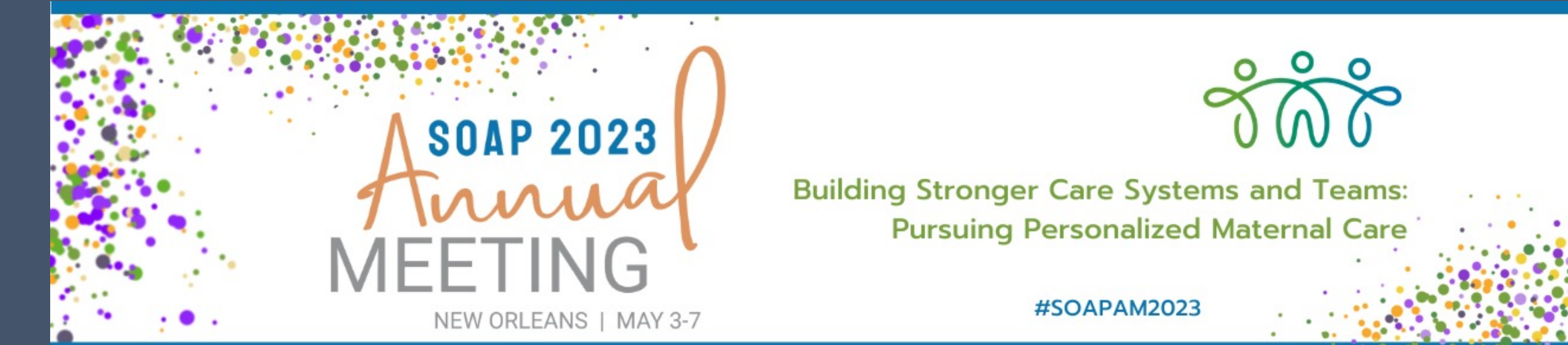
- ❖ There was no significant difference in heart rate upon arrival in PACU (group A=80.4, group B=79.4).
- ❖ In Group B, 13% of patients had a recorded HR ≤ 55 bpm while in PACU, compared to 4% of Group A (Chi-square $P=0.04$).
- ❖ 7 Group B patients had a lowest recorded HR ≤ 49 bpm, with none in Group A under 52 bpm.
- ❖ One patient in Group B was treated with glycopyrrolate for a HR of 42 bpm and lethargy.
- ❖ In 8 Group B patients, the bradycardia continued for at least 2 hours while in one patient it persisted for 48 hrs.
- ❖ A single bradycardic patient had a concurrent MAP more than 20% above her baseline on admission to PACU; 2 patients had an accompanying drop in MAP 20% below baseline but neither was symptomatic or required treatment.

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DISCUSSION/CONCLUSION:

- ❖ Following a continuous intravenous infusion of phenylephrine, the observed effective half-life is 5 minutes, while the elimination half-life is 2.5 hours and 80% of the total dose is eliminated by 12 hours (1).
- ❖ While patients commonly have low heart rates in response to the alpha-constrictive effects, in the majority of patients the effect has worn off by arrival to recovery.
- ❖ We have shown that a significant subset of patients remains sensitive to the bradycardic effect long beyond the effective half-life. The bradycardia was mostly innocuous with only a single patient requiring treatment.
- ❖ More analysis needs to be done to determine if there are other factors predisposing this group of patients to bradycardia including age, total dose and duration of infusion.
- ❖ Providers caring for these patients (OBs, Nurses) need to be made aware of and educated on the possibility of bradycardia and its' benign nature. This will help curb unnecessary consults and/or excessive monitoring/telemetry admissions.



REFERENCES :
1 - Fresenius Kabi package insert