

Fluid preloading versus ephedrine prophylaxis in the prevention of spinal anesthesia induced hypotension in parturient mothers undergoing elective cesarean delivery at Orotta National Referral Maternity Hospital, Eritrea, 2022

Summary result overview

A total of 60 mothers who fulfilled the inclusion criteria participated in this study. As indicated in Table 1, patients were made in two categories of equal number; 30 (50%) each. There was no statistically significant difference between the groups with regard to their demographic status and the participants in both groups were comparable (Table 2). All mothers underwent caesarean section under spinal anesthesia and the most common (83.3%) cause in both groups was a history of delivery through caesarian section. Those who developed hypotension during the study time were managed with 5mg of bolus ephedrine. The experience of nausea and vomiting was only seen in those who were in the preload group. The rest of the demographic and clinical characteristics of the mothers are depicted in Tables one and two.

Table 1. Clinical characteristics of the study participants

Variables	Preloading Group		Ephedrine Group	
	Frequency	Percentage	Frequency	Percentage
Reason for C/S				
Previous C/S	21	70	25	83.3
CPD	2	6.7	1	3.3
Malpresentation	3	10	1	3.3
Others	4	13.3	3	10
Previous Hx of C/S				
Yes	21	70	25	83.3
No	9	30	5	16.7
Hx of complicated anesthesia				
Yes	0	0	0	0
No	30	100	30	100
Gravid				
One	8	26.7	3	10
Two	2	6.7	11	36.7
Three	12	40	6	20
Four	5	16.7	6	20
≥ Five	3	10	4	13.3
Level of spinal block				
T5	0	0	3	10
T6	23	76.7	20	66.7
T7	6	20	6	20
T8	1	3.3	1	3.3

Table 1. Demographic data of patients included in the study

Variable	Preload Group	Ephedrine Group	<i>P</i> value
Age	32.1 (24 - 41)	29.8 (22 - 40)	0.14
BMI	26.7 \pm 2.4	25.1 \pm 2.1	0.16
Height	162 \pm 7.0	163.9 \pm 6.4	0.61
Parity	1.7 (0 - 6)	1.8 (0 - 6)	0.81

Effect of fluid preloading versus ephedrine prophylaxis

The systolic blood pressure was considered as a major comparing variable to determine the hemodynamic change of the mothers in both groups. After taking the measure of blood pressure every three minutes, a clinically significant difference in their systolic blood pressure was scored (Figure 1). However, the result was not statistically significant, except at the 31st min ($p=0.039$) after spinal anesthesia.

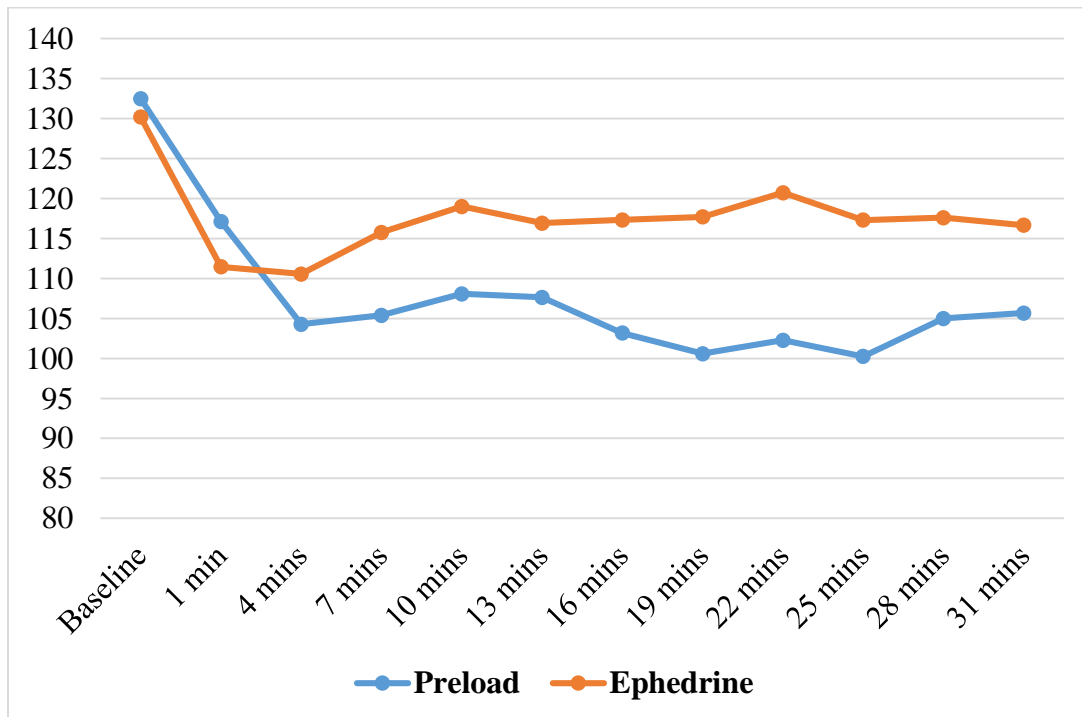


Figure 1. Trend of systolic blood pressure (data presented as mean)

Regarding the score of heart rate of the mothers, those who were in the ephedrine group were experiencing higher heart rate compared to the preload group (Figure 2). Yet, this was not a statistically significant finding except at the 10th minute ($p=0.025$). No statistically significant difference was scored in the oxygen saturation of the mothers ($p>0.05$).

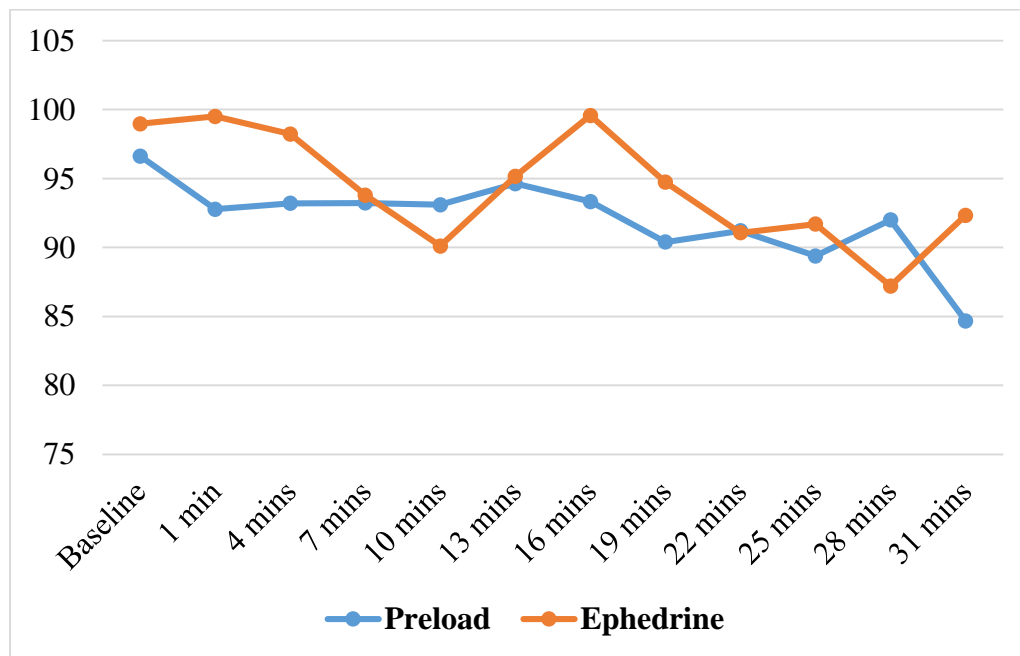


Figure 1. Mean heart rate trends (data presented as mean)

This incidence of complications is indicated in Figure 3. The incidences of hypotension and nausea and vomiting were highly significant both clinically and statistically ($P=0.0001$) in the preloading group (Figure 3). 3.3% of the patients in the ephedrine group experienced hypotension requiring rescue dose of ephedrine.

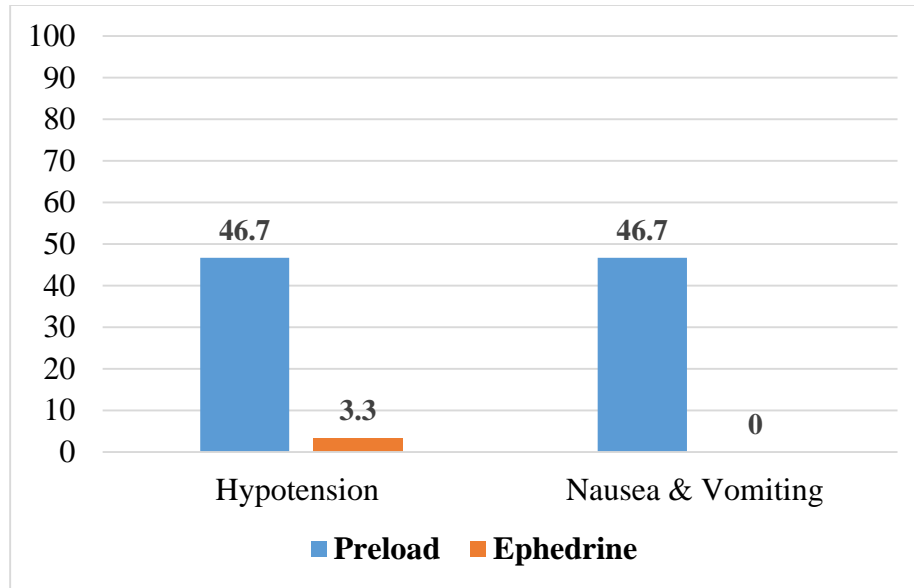


Figure 3. Incidence of Complications

The study concluded that the use of ephedrine as a prophylaxis is better than that of fluid preloading in maintaining spinal-induced hypotension and hemodynamic status of parturients undergoing caesarean section under spinal anesthesia. The search for the effective dose of ephedrine for prophylactic administration is clinically important and we suggest future studies should be undertaken to identify it.