



A Comparative Study of the Effect of Spinal Anesthesia on Hemodynamics for Pregnant Women in Iraq

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ABSTRACT

This study aims to know the effects of spinal anaesthesia on the Study of total dynamics in pregnant women in Iraq were. This study was conducted in different hospitals in Baghdad, Iraq, where 80 patients were collected and divided into two groups, where each group included 40 patients to know the effect of spinal anaesthesia on hemodynamic in pregnant women.

An elevation was found in Lowest SBP mmHg Compared to the control group; as for Lowest DBP mmHg, we note the rise and the effect of spinal anaesthesia on patients, where the value of sedation was 70.3 ± 13.8 As for the control group, it was 45.6 ± 9.1 . The relationship generated by the effect of spinal anaesthesia on the patients and the group was clarified, and we note that there is a clear and positive effect on the group of patients.

As for the control group, the type of effect was negative, and no statistically significant relationship was found.

Keywords:

Spinal anaesthesia, SBP, DBP, MAP, HA.

Introduction

Obstetrics, especially caesarean section (CS), in terms of speed of development and rapidly changing clinical situations, appears to be one of the most difficult anaesthetics.

The benefits of anaesthesia in obstetrics have their own characteristics. They consist of a variable reaction and sensitivity to drugs, in case of urgency of most of the benefits of

anaesthesia, in violations of the digestive system, in the presence of uterine circulation, in the possibility of penetration of drugs used in the body of the fetus.

In similar studies and for years, most doctors preferred to resort to epidural anaesthesia in pregnant women and read the effects on hemodynamic.

Pregnancy-induced hypertension is a major cause of morbidity and

mortality in obstetrics, complicating 3%-8% of pregnancies. Severe pre-eclampsia poses a dilemma for anaesthesiologists, and there is some debate about the best anaesthesia technique for caesarean delivery in such cases. In some studies with mixed results, although there is a variance in the definition of hypotension for patients of expectant mothers with spinal anaesthesia, most authors define it as a 20% to 30% reduction in systolic blood pressure when compared with general anaesthesia.

It should be borne in mind that blood pressure figures, like other hemodynamic and physiological variables, are constantly changing and adapting to various phenomena affecting homeostasis; They must be interpreted in the appropriate clinical context, so defining the breakpoints for the definition of hypotension should be a guide only, and it is not appropriate to make the definition an extreme, as we explained earlier, with multiple versions and diversity in itself.

Since it is a measurement, there may be variance explained by random or systematic errors inherent in the method of measurement (direct or indirect) and individual variability, i.e., for the patient at different times, which must be taken into account when interpreting blood numbers for isolate pressure.

Material and method

Patient sample

Results

Table 1- distribution of patient according to age

AGEPATIENT						
		F	%	VP	CP	CHI SQUARE
Valid	20-24	9	22.0	22.5	22.5	4.23
	25-29	10	24.4	25.0	47.5	
	30-34	7	17.1	17.5	65.0	
	35-40	14	34.1	35.0	100.0	
	Total	40	100	100.0		

This study was conducted in different hospitals in Baghdad, Iraq, where 80 patients were collected and divided into two groups, where each group included 40 patients to know the effect of spinal anesthesia on hemodynamics in pregnant women.

Study design

A poor survey was conducted consisting of two groups, each group included 40 patients, and the aim of this study was to know the direct and indirect effect of spinal anesthesia on pregnant women and their hemodynamics.

The following circulatory parameters have been studied:

1. Blood pressure indicators: diastolic (DBP), (MAP), systolic (SBP);
2. Cardiac activity indicators
3. Phenylephrine consumption (μg)

Information and demographic data of the patient, consisting of age, body mass index, and gestational age (weeks), were also collected.

Study period

After obtaining the ethical approvals for this study and collecting patients and demographic data, the study period was for a full year from 4-6-2020 to 12-7-2021

Aim of research

This study aims to know the effects of spinal anesthesia on the Study of total dynamics in pregnant women in Iraq

Table 2- distribution of control according to age

AGEPATIENT				
		F	%	CHI SQUARE
Valid	20-24	5	12.5	3.39
	25-29	7	17.5	
	30-34	8	20	
	35-39	12	30	
	40-45	8	20	
	Total	40	100	

Table 3- mean sd of demographic results patient

Statistics		AGEP	control	BMI P	BMI C
N	Valid	40	40	40	40
	Missing	3	3		
Mean		30.3500	26.6500	28.2	23.5
Median		30.0000	25.0000	19.8	16.7
Std. Deviation		6.30649	5.73138	2.2	2.5
Skewness		-.104	.883	-0.23	0.45
Std. Error of Skewness		.374	.374	0.223	0.34
Minimum		20.00	20.00	25	20
Maximum		40.00	40.00	32	26
Percentiles	25	25.0000	22.0000	24	21
	50	30.0000	25.0000	29	25
	75	36.0000	29.7500	24	20

Table 4- Gestational age (weeks) Statistics

Statistics			
		p	control
N	Valid	40	40
	Missing	3	3
Mean		36.98	38.1
Median		33.2	27.54
Std. Deviation		1.523	1.64
Minimum		34	36
Maximum		38	40

Figure 1- Lowest SBP mmHg Statistics

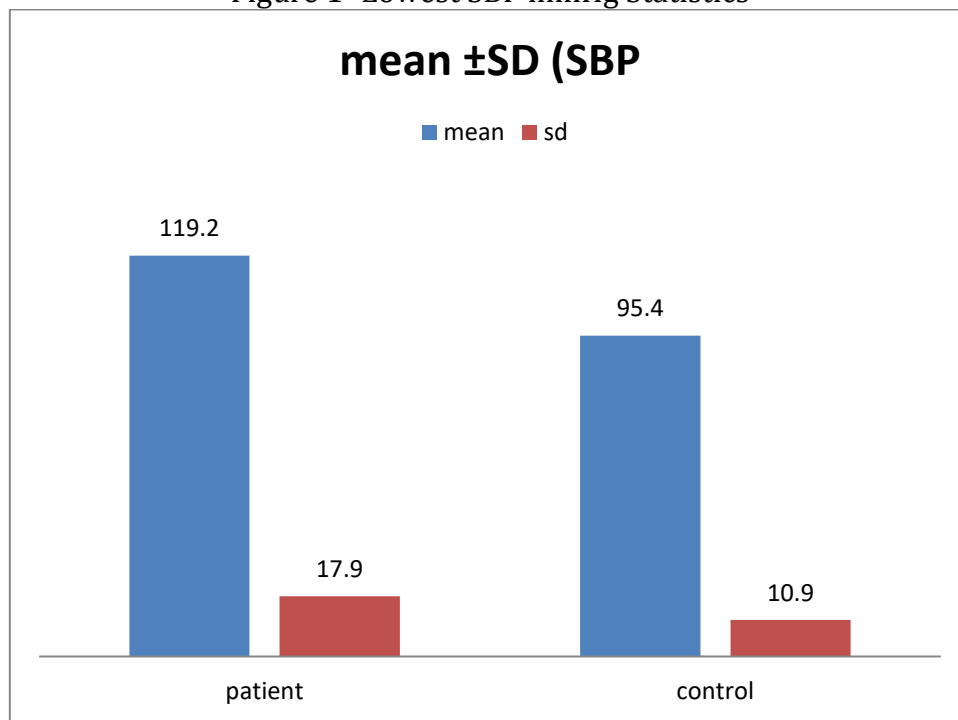


Figure 2- results of Lowest DBP mmHg

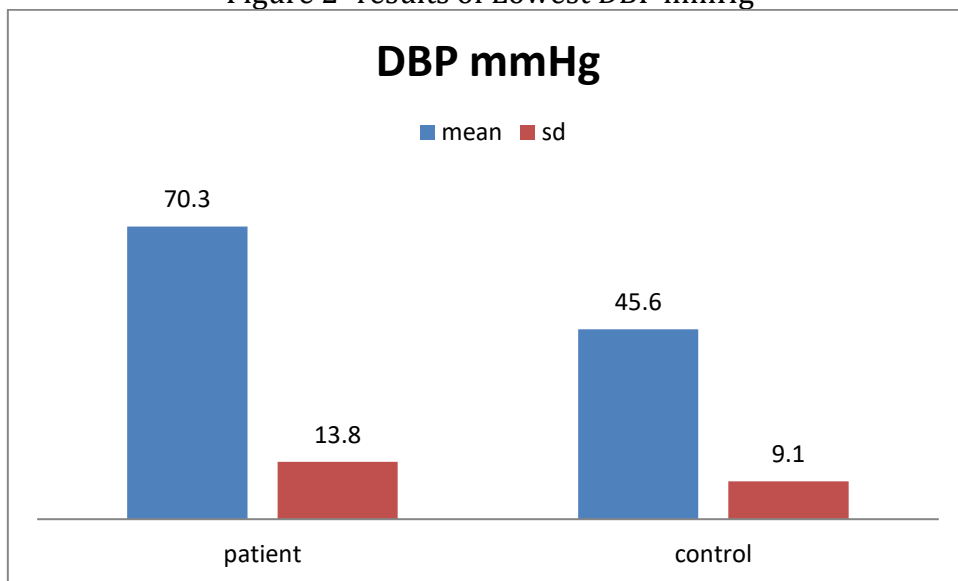


Figure 3- Comparison between groups according to Lowest MAP mmHg

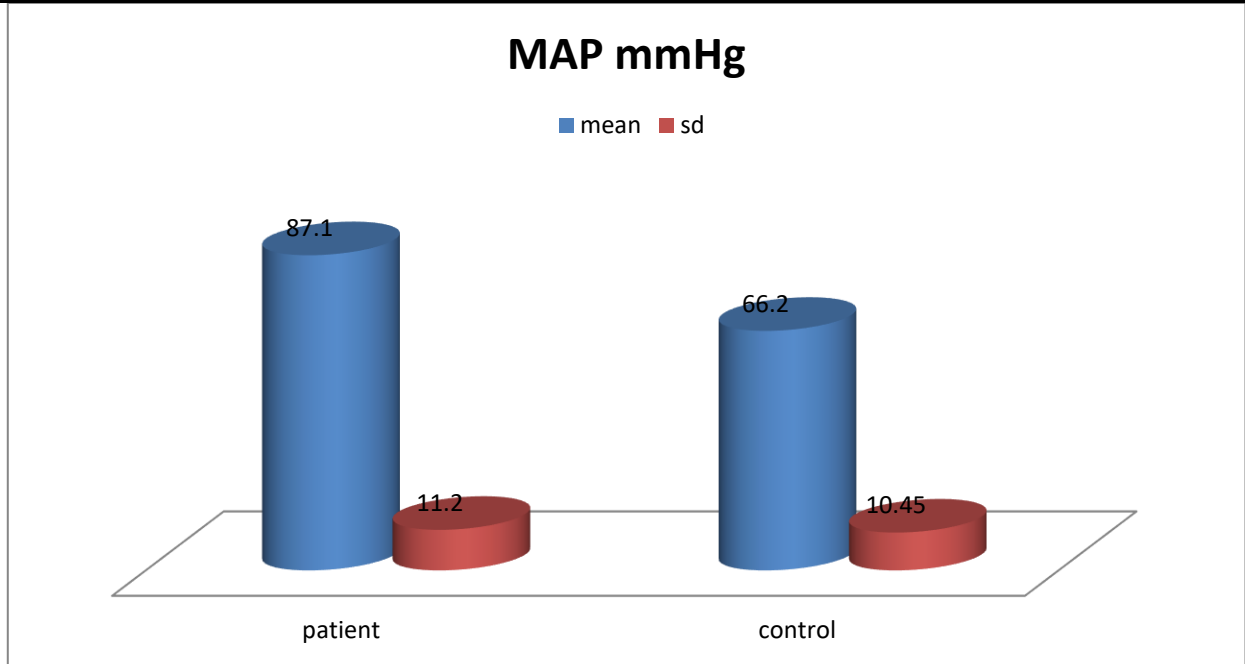


Figure 4- Comparison between groups according to Phenylephrine consumption (μg)

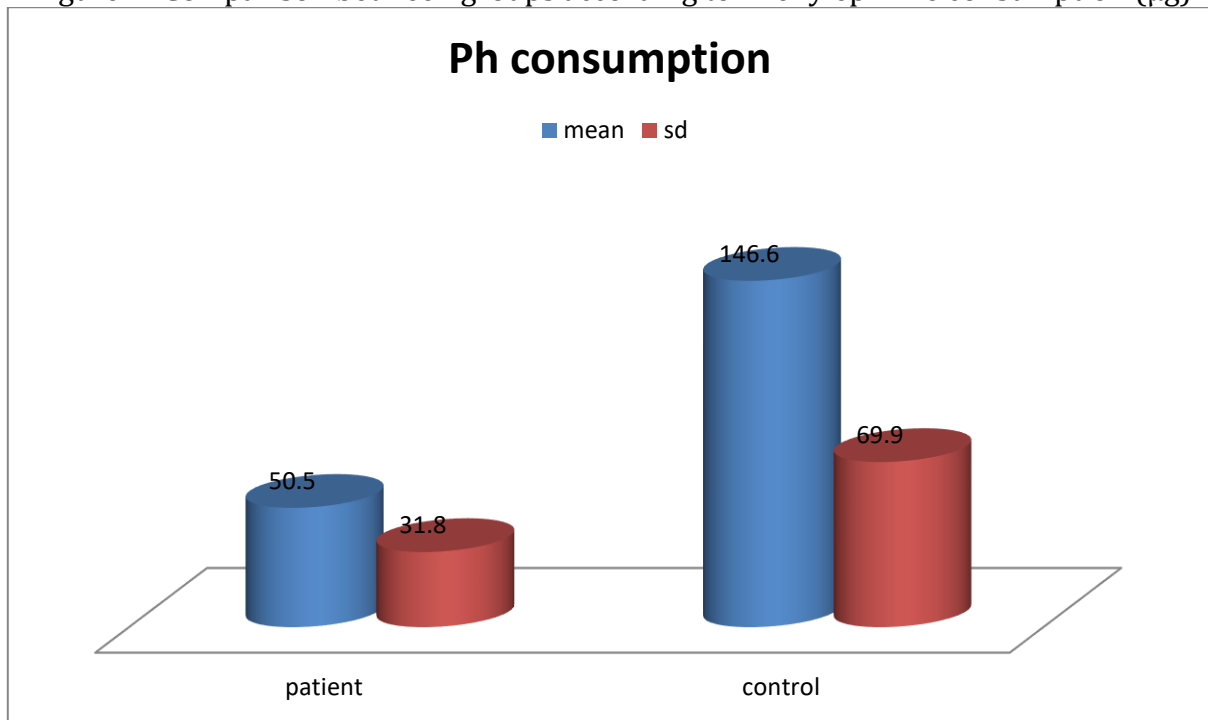


Figure 5- Comparison between groups according to HR after SA (beats/minute)

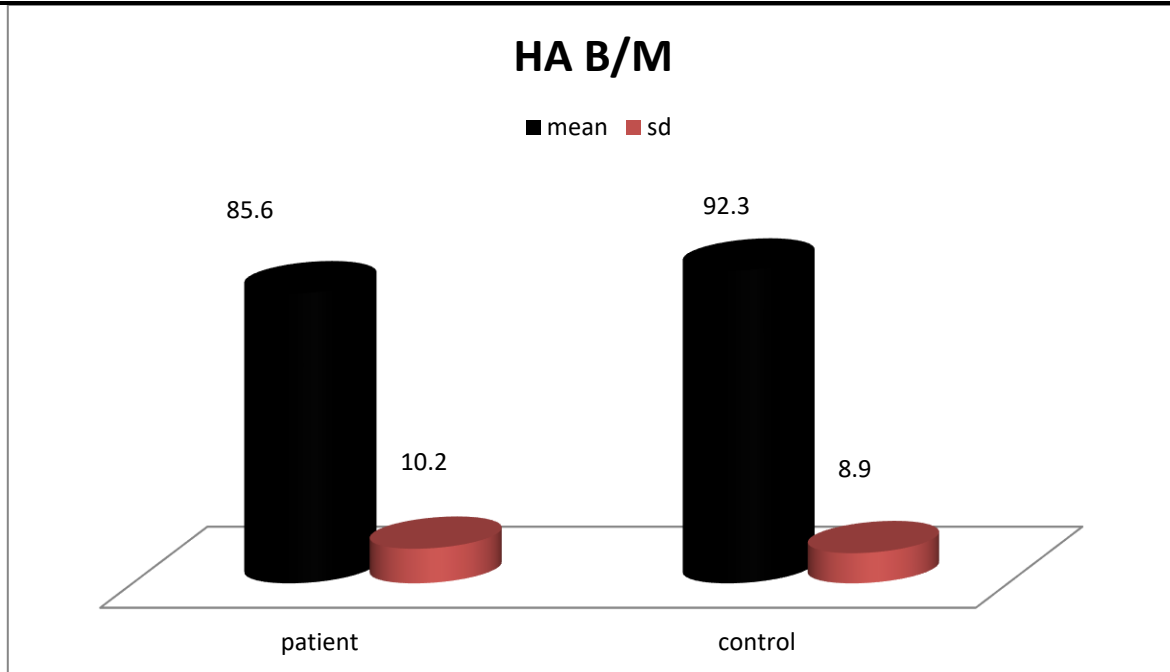


Table 5- P-value results of a study

	p-value
HA	0.032
SBP	0.045
DBP	0.023
MAR	0.001
Phenylephrine consumption	0.001
AGE	0.087
BMI	0.0023

Table 6- Correlations effect spinal anaesthesia on groups

Correlations			
		G1	G2
G1	Pearson Correlation	1	-.068
	Sig. (2-tailed)		.676
	N	40	40
G2	Pearson Correlation	-.068	1
	Sig. (2-tailed)	.676	
	N	40	40

Discussion

A study was conducted on pregnant women to find out the effect of spinal anesthesia on the two groups of patients and the control group, where 80 patients were collected from the Hospital, and it was noted that the average age for the patients was less than the average age in the control group, and statistical analysis was conducted to the results related to this study through the application SPSS soft 20 and MS Excel 2013

The MEAN VALUE for the patients' ages was 30.3500 + 6.30649; as for the control group, the MEAN VALUE was 28.2 + 2.2, as shown in Table 3.

mean value of Gestational age (weeks) Statistics for patients was 36.98+1.523 and for control Gestational age (weeks) was 38.1+1.64 as shown in table 4

Hypotension of maternal patients with anaesthesia, as most authors define it as 20% to 30% fall in systolic blood pressure, compared to initial values, with absolute values of systolic blood pressure between 100 mmHg and 90 mmHg, it should be noted that the results of blood pressure, like other dynamic and physiological variables, are constantly changing and adapting to various phenomena affecting homeostasis. It must be interpreted in context clinically.

Hypotension due to spinal anesthesia in pregnant patients undergoing caesarean section is the most common side effect of the anesthesia technique and is associated with negative outcomes for the mother and fetus. This document provides a descriptive review highlighting the frequency of this condition, pathophysiology, clinical significance, definition, prophylactic and curative treatment. Although all the prescribed preventive measures are used, some of them are effective for preventing hypotension, such as the use of crystalloids, colloids, ephedrine, phenylephrine, and lower extremity decompression; none of these preventive interventions completely prevent the treatment of maternal hypotension. It was created during caesarean section with spinal anesthesia, and finally, between 40% and 60%

of patients will be treated with antiangiogenic in the prescribed context. 6

The positive effects on the uterine circulation are explained by the increased synthesis of nitric oxide and a decrease in the sympathetic innervation of the vascular bed of the uterus. In addition, ephedrine exhibits a beta1-adrenergic effect, which explains the temporal, inotropic, and positive orientation, significantly increasing heart rate and cardiac output and exerting a modest effect on beta2-adrenergic receptors, which could partly explain uterine dilation. Choroidal blood vessels. The effect of vascular pressure (arterial and venous) is mediated

Conclusion

Patients with hypertensive disorders of pregnancy, particularly preeclampsia, have increased vascular tension due to endothelial changes and partly due to increased sympathetic outflow, making them more susceptible to hypotension due to pharmacological sympathectomy than healthy pregnant women. However, some studies show that hypotension caused by spinal anesthesia in patients with preeclampsia is less frequent and less severe, possibly due to placental changes and growth restriction.

Recommendations

1. It is unclear whether crystalline fluid prevents hypotension because the quality of evidence is very low. Giving colloids instead of crystals may mean that fewer patients experience low blood pressure after spinal anaesthesia.
2. Hypotension can be prevented by administering intravenous fluids, administering medications (e.g., ephedrine, phenylephrine, ondansetron), or by applying pressure to the legs, or having the mother lie down or walk prior to spinal anaesthesia.

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