

Clinical Effect of Combined Spinal-Epidural Anesthesia in Labor Analgesia

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Abstract: Objective: to explore the curative effect of Combined spinal-epidural anesthesia in labor analgesia. Method: 90 puerperae who gave birth in our hospital were chosen as the objects of study, and they were classified into two groups at *random*. Besides, they received Epidural anesthesia (control group) and Combined spinal-epidural anesthesia (observation group). The effects of two different methods in labor analgesia were observed, and inter-group comparison was conducted. Results: hemodynamic indicators of both groups before anesthesia were close, and the observation group suffered less influence. In addition, the good anesthesia rate of observation group was 100.00%, higher than control group (44.44%). The inter-group comparison difference was significant ($p < 0.05$). Conclusion: the effect of Combined spinal-epidural anesthesia in labor analgesia is good, so it deserves to be promoted.

Keywords: combined spinal-epidural anesthesia; labor; analgesic effect

The labor process is mostly accompanied with prominent pain phenomenon. How to implement effective analgesia is a key topic of most studies [1]. At present, there are many analgesia methods in the labor process. Combined spinal-epidural anesthesia is a common method in the hospital where the author works. This study aims to explore the practical effect of this method in the labor analgesia and provide the reference for relevant work. The research details are as below.

1. Data and Method

1.1. General Data

90 puerperae who gave birth in our hospital from January 2017 to June 2018 were chosen as the objects of study. They were classified into two groups at random: control group (45 cases) and observation group (45 cases). For the control group, the age of was 23-33, and the average age was 28.62 ± 2.31 ; the number of gestational weeks was 38-41, and the average number of gestational weeks was 39.65 ± 0.34 ; the weight of puerperae was 57-78 kg, and the average weight was (65.35 ± 2.13) kg. For the observation group, the age of was 23-34, and the

average age was 28.59 ± 2.18 ; the number of gestational weeks was 38-42, and the average number of gestational weeks was 39.86 ± 0.42 ; the weight of puerperae was 58-78 kg, and the average weight was (65.95 ± 2.09) kg. All puerperae were of monochyosis, and inter-group comparison differences had statistical significance ($p > 0.05$), that is, the weight, number of gestational weeks and age of both groups were close [2,3].

1.2. Method

The orifice of uterus of both groups was observed. When the orifice of uterus was greater than 3 cm, the puerpera entered the delivery room and the upper extremity vein was opened to observe the blood pressure, ECG and oxyhemoglobin saturation. Then, anesthesia was implemented for the puerpera according to the group.

Epidural anesthesia was conducted for the control group. L2-3 gap was used as the puncture point, and 18G tuohy needle was used for puncturing. Meanwhile, air resistance disappearance method was applied to judge whether the puncture succeeds. After the success of puncturing, 5ml lidocaine (concentration 1%) was injected, and then the patient was observed. If there was no abnormality at the interval of 5 min, 5ml ropivacaine hydrochloride (concentration 0.15%) was chosen to inject at the speed of 8ml per hour. The medicine would not be used any more until the orifice of uterus was fully open.

The observation group received Combined spinal-epidural anesthesia. The patients kept lateral position for disinfection. L2-3 gap was used as the puncture point. Epidural anesthesia was conducted for the patients. After the success of puncturing, 25G spinal needle was used for spinal anesthesia. Even if 3-4 mg ropivacaine hydrochloride was used, its concentration was diluted to about 0.5%, and the injection speed was controlled at about 1ml. Then, Epidural catheter was placed. Ropivacaine hydrochloride (concentration about 0.5%) was injected in the Epidural space of patients, and the injection speed was controlled at 6-8ml per hour. The medicine would not be used any more until the orifice of uterus was fully open.

1.3. Observation Indicators

(1) Adverse effects of both groups were observed. At the same time, systolic pressure and heart rate of both groups before anesthesia and 10min after anesthesia were observed and recorded [4,5]. (2) Evaluation criteria for maternal pain formulated by WHO were adopted to grade the pains: no pain Grade 0, basically no pain Grade I, slight pain Grade II, severe pain Grade III. Grade 0 and grade I mean good analgesia effect. The good rates of both groups were counted, and the effects of different methods in labor analgesia were evaluated [6,7].

1.4. Statistical Analysis

SPSS25.0 software was applied to analyze the data. Measurement data were expressed with $\bar{x} \pm s$ and tested with t test. Enumeration data were expressed with % and tested with χ^2 . $p < 0.05$ means the significant difference.

2. Results

2.1. Comparison of Analgesic Effect

The analgesic effect of observation group was better than that of control group. The pain comparison is shown in Table 1.

Table 1. Comparison of analgesic effect [n(%)].

Group	n	Grade 0	Grade I	Grade II	Grade III	Good rate
Observation group	45	40	5	0	0	45 (100.00)
Control group	45	2	18	22	3	20 (44.44)
χ^2	/	/	/	/	/	34.615
p	/	/	/	/	/	<0.05

2.2. Comparison of Adverse Effects

Nausea and vomiting happened to 1 case in the observation group. Nausea and vomiting happened to 1 case in the control group, and hypotension happened to 1 case in the control group. The occurrence rates of adverse effects in both groups were 2.22% and 4.44% respectively. Inter-group comparison had no significant difference (χ^2 was 0.344, $p > 0.05$).

2.3. Hemodynamics Comparison

Hemodynamic indicators of both groups before anesthesia were close. After anesthesia in groups, the observation group suffered less influence. The inter-group data details are shown in Table 2.

Table 2. Hemodynamics comparison ($\bar{x} \pm s$).

Group	Period	Systolic pressure (mmHg)	Heart rate (time/min)
Observation group	Before anesthesia	137.62 ± 10.64	84.63 ± 9.31
	10min after anesthesia	119.65 ± 6.84	87.62 ± 13.24
Group	Before anesthesia	137.49 ± 10.29	84.62 ± 9.46
	10min after anesthesia	106.32 ± 1.34	95.32 ± 12.19
t	Comparison after anesthesia	12.829	2.870
p	Comparison after anesthesia	<0.05	<0.05

3. Discussion

Labor refers to a physiological process in which a fetus is delivered by the mother, and it is influenced by multiple factors such as paroxysmal contractions of the uterus and injury of birth canal tissue when the fetus is delivered. The labor process is often accompanied with pains to different degree [8,9]. The pain may lead to stress and disturbance to puerperae, and goes against smooth delivery. Thus, analgesia intervention is required according to actual conditions of puerperae [10]. Conventional Epidural anesthesia may have the phenomenon of incomplete retardation under the action of multiple factors so that it is hard to fully reflect the analgesic effect. Thus, puerperae may have relevant stress responses, and hemodynamic indicators are seriously impacted [11]. Combined spinal-epidural anesthesia refers to implementation of spinal anesthesia based on conventional Epidural anesthesia. It is easy and simple to carry out spinal anesthesia, and the level of anesthesia can be well adjusted to meet analgesia demand in the labor process, control pains, reduce puerperae's stress responses and achieve good application value. Thus, it is believed that the application advantage of combined spinal-epidural anesthesia is outstanding [12].

4. Conclusion

In conclusion, the application of Combined spinal-epidural anesthesia in labor process can generate good anesthetic effect and guarantee stable hemodynamics to certain degree. Therefore, the application value of this method is significant.

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