Online ISSN: 2158-0820
Advancesin Open Access Journals

Published by advancesin@www.cancercellresearch.org
Chronic Diseases Prevention Review, 2024, Vol. 8, No.30

RESEARCH ARTICLE

Title: Application of epidural space block in elderly patients with acute herpes zoster neuralgia

Sizhen Ji[1], Zhiqiang Li[2], Haiqing Song[3], Wenxun Shao[3], Zongmin Ji[4], Nirong Wang[3*]

[1]Department of Clinical Medicine, Shandong First Medical University, Jinan, 250109 China

[2]Anesthesiology Department, No.971 Hospital of the People's Liberation Army Navy, Qingdao, 266071 China.

[3]Anesthesiology Department, Navy 971 Hospital of the People's Liberation Army Navy, Qingdao, 266071 China.

[4]Surgery, Laoshan Medical District, Navy 971 Hospital of the People's Liberation Army Navy, Qingdao, 266071 China.

ARTICLE HISTORY

Received: 05-May-2022
Revised: 14-Sep-2024
Accepted: 14-Sep-2024
DOI: 10.54762/CDPR2024-30.16-19

Abstract: To explore clinical significance of patient-controlled epidural analgesia (PCA) in elderly patients with acute herpes zoster neuralgia. 44 elderly patients with herpes zoster neuralgia were divided into C and D groups according to puncture date. All patients underwent epidural puncture on corresponding skin lesions, intubation, and connection to PCA pumps equipped with compound anti-inflammatory and analgesic solutions. In group C, the epidural catheter was inserted into the affected side under the verification of the C arm. In group D, the steel wire was pulled out before the catheter was inserted, and the epidural catheter was routinely inserted. The pain was evaluated by NRS. On the 3rd, 5th, 7th and 30th day of treatment, the NRS scores of the two groups were significantly different from those before treatment and there was a significant difference between the two groups. The total amount of medication in group C was low, and the difference between the two groups was significant. The puncture-related complications of the two groups were not statistically significant. The epidural PCA infusion in the lateral space was more effective than the conventional PCA in relieving the pain of herpes zoster neuralgia in the chest and abdomen.

Keywords: Patient-controlled epidural analgesia; Elderly patients; Herpes zoster neuralgia; NRS scores; Epidural puncture

*Address correspondence to Nirong Wang at the Surgery, Laoshan Medical District, Navy 971 Hospital of the People's Liberation Army Navy, Qingdao, 266071 China. Email: sijia7206828@163.com

1. Introduction

Shingles is a varicella-zoster virus lurking in the dorsal root ganglion. It is activated when the body's resistance decreases, causing herpes to appear along the corresponding segment of the sensory nerve, and most of it is accompanied by severe pain. The more likely it is to leave post herpes zoster neuralgia, so comprehensive treatment in the acute phase of elderly patients is very important [1]. To relieve pain and promote the healing of nerves and skin lesions in the acute phase, the author's team observed and analyzed the application of lateral dural space block in the treatment of senile herpes zoster neuralgia and achieved good results. The report is as follows.

2. Materials and methods

2.1 General information

Select the pain ward of the Anesthesiology Department of the 971st Naval Hospital of the Chinese People's Liberation Army, the elderly patients with thoracic and abdominal herpes zoster neuralgia, 44 cases, 20 males, 24 females, age 65–84-year-old. All patients were treated in outpatient clinics, and the results were not good, requiring hospitalization. Exclude patients with severe heart, lung and kidney disease, diabetes, neurological disease, severe spinal deformity that is not conducive to dural puncture and coagulation dysfunction. According to the date of epidural puncture, they are divided into two groups C and D. There were 22 cases in both groups. The patients in both groups underwent epidural puncture on the corresponding skin lesions, intubated and connected to PCA pump equipped with compound anti-inflammatory and analgesic liquid. The general information of the two groups of patients is shown in Table 1.

2.2 Treatment method

After admission, both groups of patients were given paracetamol and dihydrocodeine tablets, 1.0, orally, 3/day; mecobalamin dispersible tablets 0.5, orally, 3/d, 100ml normal saline + vaccinia vaccination, rabbit skin

Copyright@2024 by Chronic Diseases Prevention Review © Advancesdin Publishers

immunization Extract injection 6ml intravenously, 1/d, 250ml physiological saline + Acyclovir injection 6mg/kg, intravenously, 3/d, instilled once for 10 days. Both groups used a disposable anesthesia puncture kit (AS-E, puncture needle 1.8#, number: 175010) produced by Henan Yadu Industrial Co., Ltd. The epidural puncture of the two groups of patients was performed by the author's team. The position of the epidural puncture was the affected side down, and the side of the affected side was approached centrally. The epidural catheter was inserted according to the corresponding skin lesion segment and intervertebral space. After successful, in group C, an epidural catheter with a steel wire was placed, and under the verification of the C-arm, the catheter was placed on the affected side; in group D, the steel wire was pulled out before the epidural catheter was placed, and the epidural catheter was inserted according to clinical experience. After the two groups of patients were successfully placed in the tube, a 20cm subcutaneous tunnel was made. The epidural catheter was properly fixed, and the PCA pump equipped with a compound analgesic liquid was connected. The formula of the PCA pump anti-inflammatory and analgesic liquid was lidocaine hydrochloride injection 600mg+20mg methylprednisolone, diluted with normal saline to 200ml, pump injection at a parameter of 4ml/h, a single dose of 0.5ml, and a lock-in time of 15min. After the infusion of the analgesic liquid in PCA, continue to add it according to the set formula. The amount of liquid was accurate each time. For the liquid that has not been pumped, use a syringe to suck it and record the number of milliliters. Remove the hard after 1 week. During extra-membrane catheterization, record the amount of drug injected by the master pump, record abnormal feelings during puncture, and record blood and cerebrospinal fluid during puncture. There are no neurological complications and infection cases after puncture. If the pain is not significantly relieved, switch to intravenous pump analgesia.

2.3 Efficacy evaluation

Numerical Score Scale (NRS) to evaluate the pain before treatment, on the 3rd, 5th, and 7th day after treatment, and 1 month after treatment; discharge 6 months , application of NRS score and efficacy evaluation: clinical cure (pain disappeared after treatment, NRS <2 points); improvement (pain is significantly reduced, sleep is not affected, NRS score 2 to 3 points); invalid (no significant pain relief after treatment or Still need oral analgesics, NRS $\geqslant$ 4 points). Wechat or telephone return visits were used to collect data for patients 1 month after treatment and 6 months after discharge.

3. Statistical analysis

All data are expressed as mean $\pm$ standard deviation, and SPSS 23.0 statistical software is used for data analysis. Two-sample t test is used between groups, X^2 test was used for qualitative data, and paired data t test was used for comparison within groups. P<0.01 indicates that the difference is very statistically significant, P<0.05 indicates that the difference is statistically significant.

4. Results

During the treatment, the pain NRS scores of the two groups of patients before treatment were not statistically significant, P>0.05. On the 3rd day and 1 month after treatment, the score of group C was low, the difference was statistically significant, P<0.05. On the 5th and 7th day after treatment, group C scored lower, the difference was very statistically significant, P<0.01. The difference between the two groups before and after treatment was very statistically significant, (P<0.01, Table 2).

Table 1. Comparison of general information of the two groups of patients（$\overline{x} \pm s$）

Index	C Group	D Group	T/X2	P
Male (cases)	10	11	0.09	P>0.05
Female (cases)	12	11	0.09	P>0.05
Diabetes (cases)	16	15	0.09	P>0.05
Hypertension (cases)	17	18	0.1	P>0.05
Body mass index (kg/m²)	25.13±3.61	24.50±3.80	0.59	P>0.05
Height (cm)	168.23±5.61	167.12±5.88	0.64	P>0.05
Age (years)	65.15±3.70	65.16±3.61	0.96	P>0.05
The number of skin lesion segments (n)	3.01±0.31	3.02±0.12	0.14	P>0.05

Table 2. Comparison of NRS values between the two groups（$\overline{x} \pm s$）

Group	Before treatment	3rd day after treatment	5th day after treatment	7th day after treatment	Discharged for 1 month
C	8.10±1.20	2.41±0.30	1.50±0.31	1.50±0.10	2.00±1.21
D	8.01±1.01	2.62±0.32	2.01±0.41	1.90±0.25	2.73±1.10
T/P	0.27	2.25	5.46	6.96	2.09
P	P >0.05	P<0.05	P<0.01	P<0.01	P<0.05

In terms of the therapeutic effect of the two groups, the cure rate in group C was higher, and the difference was significant P<0.05. In terms of the volume of pumped drugs, the amount of drug pumped in group C was small, and there was a very significant difference, (P<0.01, Table 3).

3 patients in group C had electric shock due to puncture volume, two patients in group D reappeared with electric shock, and no neurological symptoms were left after 3 days postoperative examination. 6 patients in group C and 2

Copyright@2024 by Chronic Diseases Prevention Review © Advancesdin Publishers

patients in group D were difficult to intubate. There were 4 cases in group C and 3 cases in group D. There was no statistically significant difference due to complications. There were no cases of penetration of the dura mater or infection after puncture in both groups.

Table 3. Comparison of the treatment effect and total drug dosage of the two groups（$\overline{x} \pm s$）

Group	Cure	Get better	Invalid	Total dose (ml)
C	12	7	3	700.12±23.32
D	5	13	4	750.42±40.32
T/P	4.7	3.3	0	5.07
P	P<0.05	P>0.05	P>0.05	P<0.01

5. Discussion

In the acute stage of herpes zoster virus, the virus is reactivated, replicates in large quantities, and descends along the sensory nerve fibers to reach the innervated dermatome, causing skin lesions in the area innervated by the affected nerves, and some patients suffer severe pain, and the VAS score can be as high as 7-10 in elderly patients. It is easy to leave herpes zoster postherpetic neuralgia. The traditional method is oral or intravenous infusion of antiviral, analgesic, and nutritional nerve drugs, but it is difficult to quickly and effectively relieve pain, so some scholars [2] use ultrasound guidance intercostal nerve block was performed to treat thoracic and abdominal herpes zoster and achieved good results. This is consistent with the responsible nerve treatment of herpes zoster virus infringement by the author's team. In the acute stage of treatment, the NRS score was C and D. The pain scores of the group were significantly lower than before treatment, which was very statistically significant, P<0.01. In fact, lateral space epidural block is a classic method for the treatment of painful diseases, which has been used in the pain field for a long time [2] [3]. Of course, we use the local anesthetic lidocaine, which continuously acts on the nerves, has local vasodilators, accelerates the circulation of metabolites, and promotes the role of nerve repair [4]. At the same time, compound methylprednisolone [5] is effective in sterility The effect of inflammation treatment is better, it can significantly reduce the inflammatory response, which is conducive to the treatment of acute disease, which is consistent with the research of scholars [6]. So why does lateral space epidural block have better analgesic effect in the acute phase? The score of group C is lower, compared with the score 3 days after treatment and 1 month after treatment, P<0.05, 5 and 7 days after treatment, P< 0.01, this is because human epidural space has membranous vertebral ligament, which leads to differences in the distribution of epidural tube and drug solution [7]. Group C is deliberately placed on the affected side under the guidance of the arm, which is conducive to the continued development of the drug Treatment effect, and group D may be on the affected side, or on the median or uninfected side, so that the drug continues to act on the inner side of the affected side to reduce the amount of nerve drug, which affects the therapeutic effect, which explains why the total amount of drug used in group C is small. Compared with group D, P<0.01, and at the same time, the treatment rate is clearly better than that of group D, P<0.01. This is because the continuous action of the drug and the responsible nerve are more conducive to nerve repair. Of course, we also found that this group of observation and control, elderly The incidence of neuralgia after herpes is low [8] [9]. At the same time, scholars have reported that patients have constipation and urinary retention due to herpes pain in the abdomen and sacrum or medications [10]. Although this group of studies did not show constipation and urine Retention of patients, but because of the side effects of analgesics and the innervation of the nerve pain can occur. Herpes zoster and post-herpetic neuralgia have always plagued people's lives. As a result, many scholars have made great progress in the treatment of vaccines [11] and clinical drug technology [12]. This study focused on clinical problem solving, pain resolution, and healing, and achieved good results.

6. Conclusion

To sum up, the lateral space epidural block has a definite effect in the treatment of herpes zoster in the acute stage of the elderly. The clinical application equipment is few and the operation technique is simple. It is worthy of popularization and application.

CONFLICT OF INTEREST

Not any conflict interest.

References

1. Yu S, Wan Y, Wan Q, Ma K, Wang J, Lu Z, Liu Y, Liu X, Liu H, Liu R: **Consensus of Chinese experts on diagnosis and treatment of postherpetic neuralgia**. *Zhong Guo Teng Tong Yi Xue Za Zhi* 2016, **22**:161-167.
2. Ji S, Li Z, Song H, Shao W, Ji Z, Wang N: **Application of epidural space block in elderly patients with acute herpes zoster neuralgia**. In: *BASIC & CLINICAL PHARMACOLOGY & TOXICOLOGY: 2021*: WILEY 111 RIVER ST, HOBOKEN 07030-5774, NJ USA; 2021: 50-50.
3. Xu X, Zhan L, Lu H, Yu G, Xia C, Xu Y, Liu G, Chai Y, Lan Y: **Effect of butorphanol tartrate combined with dexmedetomidine on postoperative analgesia**. *Vojnosanitetski pregled* 2024(00):3-3.
4. Al-Dalahmah O, Goldman J: **American association of neuropathologists, Inc**. *Journal of Neuropathology & Experimental Neurology* 2020, **79**(6):654-716.

Copyright@2024 by Chronic Diseases Prevention Review

5. Butt E: **Pathomechanism and therapeutic possibilities of arthritis**. Szegedi Tudomanyegyetem (Hungary); 2021.
6. Hsieh L-F, Mao H-F, Lu C-C, Hsu W-L: **Rheumatologic rehabilitation**. In: *Braddom's Physical Medicine and Rehabilitation*. edn.: Elsevier; 2021: 606-626. e601.
7. De Andrés J, Reina MA, Prats A: **Epidural space and regional anesthesia**. *European Journal of Pain Supplements* 2009, **3**(2):55-63.
8. Johnson RW: **Herpes zoster and postherpetic neuralgia**. *Expert review of vaccines* 2010, **9**(sup3):21-26.
9. Jung BF, Johnson RW, Griffin DR, Dworkin RH: **Risk factors for postherpetic neuralgia in patients with herpes zoster**. *Neurology* 2004, **62**(9):1545-1551.
10. Choo PW, Galil K, Donahue JG, Walker AM, Spiegelman D, Platt R: **Risk factors for postherpetic neuralgia**. *Archives of internal medicine* 1997, **157**(11):1217-1224.
11. Forbes HJ, Bhaskaran K, Thomas SL, Smeeth L, Clayton T, Mansfield K, Minassian C, Langan SM: **Quantification of risk factors for postherpetic neuralgia in herpes zoster patients: a cohort study**. *Neurology* 2016, **87**(1):94-102.
12. Schmader K: **Herpes zoster in older adults**. *Clinical infectious diseases* 2001:1481-1486.

© Advancesdin Publishers