

The Impact of Programmed Pain Management Interventions on Patients with Postherpetic Neuralgia

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Abstract: *Objective:* To analyze the effect of programmed pain management intervention on patients with herpes zoster neuralgia. *Methods:* Seventy patients with herpes zoster neuralgia (PHN) who met the criteria for this study were selected as the subjects (study period: January 2025 - January 2026). They were randomly divided into a control group and an observation group, with 35 patients in each group. The control group received routine nursing care, while the observation group received a programmed pain management intervention. The psychological state, pain response, and nursing satisfaction of the two groups were compared. *Results:* Before nursing intervention, there was no significant difference in negative psychological state scores between the two groups ($p > 0.05$). After nursing intervention, the SAS and SDS scores of the observation group were lower than those of the control group ($p < 0.05$). Before nursing intervention, there was no significant difference in VAS scores between the two groups ($p > 0.05$). After nursing intervention, the VAS score of the observation group was lower than that of the control group ($p < 0.05$). The nursing satisfaction of the observation group was higher than that of the control group ($p < 0.05$). *Conclusion:* Programmed nursing intervention can reduce the psychological burden and pain response of PHN patients and improve their nursing satisfaction, which has application value.

Keywords: Programmed pain management; Herpes zoster neuralgia; Psychological state; Satisfaction

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1. Introduction

Herpes zoster neuralgia is a lesion caused by the invasion of nerve fibers by the varicella virus after infection. It is related to the patient's age and diabetes. After the virus is dormant in the human body, it is reactivated, invading the nerve ganglia and inducing inflammation, bleeding, necrosis, and finally forming herpes ^[1]. The pain of herpes zoster neuralgia is diverse, presenting as knife-like, electric shock-like, and tearing pain. It occurs intermittently or continuously. Before the rash appears, the patient feels pain, which has a great impact on their quality of life. Conventional clinical treatments such as neurotrophic therapy and antiviral

therapy can alleviate the pain to a certain extent, but cannot eliminate it. In addition to drug treatment, it is necessary to implement nursing interventions for patients^[2]. Conventional clinical nursing focuses on disease intervention, such as medication nursing and dietary nursing. Pain nursing methods have not been established as feasible plans^[3]. Programmed pain nursing is based on routine nursing and is a special intervention method to inhibit pain. Through assessment, intervention, evaluation, etc., a closed-loop nursing framework is formed to reduce pain stimulation and improve patient satisfaction^[4]. This study takes PHN patients as the research subjects and analyzes the application value of programmed pain nursing.

2. Materials and Methods

2.1. General Information

Seventy patients with PHN admitted between January 2025 and January 2026 were selected as the study subjects and randomly divided into a control group and an observation group, with 35 patients in each group. The control group consisted of 23 males and 12 females, aged 40-72 years, with a mean age of (56.12 ± 4.16) years and a disease duration of 10-30 days, with a mean disease duration of (20.43 ± 3.61) days. The observation group consisted of 20 males and 15 females, aged 41-73 years, with a mean age of (56.26 ± 4.36) years and a disease duration of 10-32 days, with a mean disease duration of (20.67 ± 3.85) days. There were no significant differences in baseline characteristics between the groups ($p > 0.05$).

Inclusion criteria: (1) Meeting the clinical criteria for PHN; (2) Having complete clinical data; (3) Having communication and cognitive functions; (4) Completing the survey independently.

Exclusion criteria: (1) Comorbid endocrine system diseases; (2) Poor adherence to treatment; (3) Severe infectious lesions.

2.2. Methods

After admission, both groups of patients underwent wound cleaning, disinfection, and anti-infective treatment.

Control group: Patients received routine nursing care, including verbal health guidance explaining the causes of the disease, pain stimuli, and the necessity of medication, once daily for 10 minutes each time, gradually increasing patient understanding of the disease. A clean and comfortable environment was created for patients, maintaining a clean, tidy, and well-ventilated ward, with bed linens changed and disinfected regularly. Patients were instructed on proper dressing and support to prevent scratching and squeezing, reducing the infection rate. Dietary recommendations included consuming high-fiber foods and avoiding spicy and irritating foods.

Observation Group: A programmed nursing intervention was implemented.

- (1) Pain Intervention: Based on the VAS visual analog scale, patients' PHN pain response was assessed. For mild pain with a VAS score of 1-3, non-pharmacological analgesia interventions were administered, such as low-frequency pulsed electrotherapy and high-energy laser therapy to reduce pain. Low-frequency pulsed electrotherapy is suitable for the early stages of pain; the electrical stimulation inhibits pain signal transmission, improves local blood circulation, and helps repair damaged nerves. It is administered once daily for 20 minutes each time, with energy parameters adjusted to patient tolerance. High-energy laser therapy uses laser stimulation of the local skin; appropriate parameters are set to reduce local damage and pain. During this period, soothing music was played for patients to promote psychological relaxation

for 30-60 minutes daily, diverting their attention from pain. Patients were guided to perform progressive relaxation exercises, starting from the feet and moving towards the calves, buttocks, etc., relaxing for 10 seconds each time, repeated 3 times. If the patient's VAS score was 4-6, indicating moderate pain, weak opioid medication was administered as prescribed, using an appropriate dose of weak opioid medication, and the drug's effects and adverse reactions were closely monitored. Nursing staff strictly adhere to the doctor's prescribed intervals when administering medication to patients, explaining common adverse drug reactions such as nausea and constipation. For patients with a VAS score ≥ 7 , indicating severe pain, they are instructed to take strong opioids such as morphine or fentanyl, combined with nonsteroidal anti-inflammatory drugs (NSAIDs) to enhance the analgesic effect. Vital signs, such as heart rate, blood pressure, and respiration, are monitored during medication administration to prevent overdose and adverse reactions.

- (2) Psychological intervention: Nursing staff communicate with patients for 10-15 minutes daily, listening to their complaints, citing successful treatment cases, and ensuring patients understand that pain can be effectively relieved, strengthening their confidence in fighting the disease. Cognitive behavioral therapy is implemented to help patients identify negative emotions, understand the relationship between emotions and disease, and actively relax to alleviate pain continuously.
- (3) The intervention period for both groups of patients was 10 days.

2.3. Observation Indicators

- (1) Psychological state: The Self-Rating Anxiety Scale (SAS) and the Self-Rating Depression Scale (SDS) were used to assess the patient's anxiety and depression scores. High scores indicate a serious adverse psychological state.
- (2) Pain response: The pain level was assessed before and after nursing care using the VAS assessment method.
- (3) Nursing satisfaction: Survey patient satisfaction, with evaluation indicators of very satisfied, satisfied, and dissatisfied.

2.4. Statistical processing

The study used SPSS 27.0 software for statistical processing of data. Standard deviations of continuous data, mean $\pm$ standard deviation (SD) were expressed as $\bar{x} \pm s$, and between groups were analyzed using t-tests. Count data were expressed as n and % and analyzed using chi-square tests. $P < 0.05$ was considered statistically significant.

3. Results

3.1. Comparison of psychological states between groups

Before nursing care, there was no significant difference in negative psychological state scores between the groups ($p > 0.05$); after nursing care, the SAS and SDS scores of the observation group were lower than those of the control group ($p < 0.05$), as shown in **Table 1**.

Table 1. Comparison of psychological states among groups (mean $\pm$ SD, points)

Group	SAS		SDS	
	Before nursing	Post-care	Before nursing	Post-care
Observation group	57.12 $\pm$ 5.72	40.57 $\pm$ 4.74	55.12 $\pm$ 4.81	38.57 $\pm$ 5.16
control group	56.91 $\pm$ 6.01	47.41 $\pm$ 4.81	55.38 $\pm$ 5.01	43.72 $\pm$ 4.81
<i>t</i>	0.435	5.724	0.137	6.176
<i>p</i>	0.673	0.001	0.854	0.001

3.2. Comparison of pain response between groups

Before nursing care, there was no significant difference in VAS scores between the two groups ($p > 0.05$); after nursing care, the VAS score of the observation group was lower than that of the control group ($p < 0.05$), as shown in **Table 2**.

Table 2. Comparison of pain response among groups (mean $\pm$ SD, points)

Group	Number of examples	Before nursing	Post-care
Observation group	35	4.12 $\pm$ 0.73	2.13 $\pm$ 0.54
control group	35	4.03 $\pm$ 1.03	3.82 $\pm$ 1.01
<i>t</i>		0.472	3.172
<i>p</i>		0.683	0.002

3.3. Comparison of satisfaction indicators among groups

The nursing satisfaction rate in the observation group was higher than that in the control group ($p < 0.05$), as shown in **Table 3**.

Table 3. Comparison of satisfaction indicators among groups (n, %)

Group	Number of examples	Very satisfied	satisfy	Dissatisfied	Satisfaction
Observation group	35	18 (51.42)	16 (45.71)	1 (2.85)	34 (97.14)
control group	35	12 (34.28)	15 (42.85)	8 (22.85)	27 (77.14)
χ^2					4.504
<i>P</i>					0.033

4. Discussion

Programmed pain management has a significant effect on reducing pain response in PHN patients. Its mechanism of action is reflected in multiple aspects, such as implementing diversified analgesic interventions according to the degree of pain of patients, through drug and non-drug analgesia, and implementing precise pain interventions based on different degrees of pain, such as implementing low-frequency pulse electrotherapy and high-energy laser intervention for mild pain, promoting local blood circulation, reducing inflammatory release, and relieving pain stimulation^[5]. Low-frequency pulse electrotherapy inhibits pain signal transmission, improves local blood circulation, helps repair damaged nerves, and mainly relieves neuralgia, numbness and other discomforts. Psychological intervention implements music and progressive muscle relaxation, diverts their attention, relaxes their mind and body, and reduces psychological burden and pain perception; for patients with moderate to severe pain, analgesic intervention is implemented on

the basis of non-drug analgesia. The appropriate drug type is selected according to the degree of pain, such as weak opioids and strong opioids, which can act on the nerve center, block signal pathways, reduce moderate to severe pain, and be combined with non-steroidal anti-inflammatory drugs to enhance the analgesic effect and improve the patient's medication compliance and tolerance ^[6]. Psychological support reduces patients' anxiety and depression, and brings nurses and patients closer, which is the key to improving nursing satisfaction. Through cognitive behavioral nursing and relaxation training, nurses listen patiently to the patient's complaints, provide emotional support, change the patient's perception of pain, correct their negative thinking, and enable them to tolerate pain.

5. Conclusion

In conclusion, implementing programmed pain management for PHN patients can reduce the impact of pain on the body, improve patient satisfaction, and alleviate negative psychological effects, thus demonstrating its practical value.

Disclosure statement

The authors declare no conflict of interest.

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