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Application of the perineal ostomy in severe organophosphate poisoned patients after catharsis

D.-M. ZHANG, Q. XIAO

Central Hospital of Xuzhou City, Xuzhou, China

Abstract. – OBJECTIVE: To investigate the efficacy of the one-piece ostomy bags for severe organophosphate poisoned patients after catharsis.

PATIENTS AND METHODS: Sixty cases of severe organophosphate poisoned patients who were given rhubarb catharsis after thorough nasal lavage were divided into two groups. The observation group used the one-piece ostomy bags whilst the control group used the disposable changing mats. The perineal skin changes, average daily hours of care, and cost of care rates were compared between the two groups.

RESULTS: The rates of perineal skin changes were lower in the observation group than the control group ($p < 0.05$). The average daily hours of nursing and the cost of care were lower in the observation group than in the control group ($p < 0.05$).

CONCLUSIONS: The application of one-piece perineal paste ostomy bag in poisoned patients after the catharsis can prevent the risk of nursing by protecting and promoting the care quality, reducing the nursing workload and improving their work efficiency. It can enhance the nurses' self-esteem, reduce patients' expenses and provide an objective basis for assessing the treatments.

Key Words:
Ostomy bag, Poisoning, Catharsis, Perineal skin changes.

Introduction

Catharsis is an important therapeutic process used to clear the absorbed poisonous substances in advanced oxidation protein product (AOPP) patients. Patient's stool frequency and volume increase after undergoing catharsis. Therefore, stool property and volume cannot be observed and recorded in the control group using the conventional method. To address this issue, the department used nursing measurement tools in severe organophosphate poisoned patients before catharsis. An one-piece perineal ostomy bag was pasted on the patient to manage the defecation and the result was satisfactory.

Patients and Methods

This analysis included 60 severe organophosphate poisoned patients, who were treated from January 2012 to June 2013. This included 32 male and 28 female patients; with ages ranging from 16-75, with a mean age of 43.168 ± 6.651. The amount of oral organophosphate used was about 50-250 ml. The perineal skin was intact, without any redness at admission to the ICU. After thorough gastric lavage, raw rhubarb aqueous solution (raw rhubarb powder, resolved in water 200 ml, 25-38°C) was infused into the stomach tube, tid, for three days. Sixty patients were divided into two groups with 30 patients in each group. The differences in sex, age, poison type, poison dose, skin on inclusion between two groups were not statistically significant ($p > 0.05$ for all comparisons).

The observation group used the one-piece ostomy bag (Convatec Inc., Skillman, NJ, USA), which was used in AOPP patients before catharsis. Nurses assisted the patients to lie in the lateral position, with legs and knees toward the chest. The perineal hair was shaved and the area was washed with normal saline, the skin was dried with sterile gauze, and sprayed the 3M protection film 10 to 15 cm away from the skin. 3. The nurses then measured the size of the patient's anus and anal sphincter and cut the central mouth in the base plate of the ostomy bag to the appropriate size. Generally, the diameter was 1.8 to 2.5 cm, according to the specific measurement, and the diameter could be larger by 0.2-0.5 cm than the measurement result. Cut the mouth of the ostomy bag to the appropriate size. If the size was too large, leakage may occur and irritate perineal skin; if the size was too small, inhibited defecation may occur. For female patients, the anus was adjacent to the vaginal opening, therefore, we cut the outer margin of the paste baseplate of the artificial anal bags to match the anus. An incision

Corresponding Author: Dongmei Zhang, MD; e-mail: Zhangdongmeinurse@126.com

of about 1 cm radially with an interval of 1-2 cm in the outer margin of the baseplate of the ostomy bag was cut. Pasted the ostomy bag: unfolded perineal skin creases, doubled over the baseplate of the ostomy bag, aligned the center with the anus, placed the outlet of the ostomy bag towards lower limbs. Unfolded one side of the ostomy bag from the inside out, then unfolded the other side in the same manner. Pressed the baseplate for 2-3 mins with palms to consolidate the paste. Rolled up the terminal end of the ostomy bag and fastened it with an elastic. If the volume of the stool in the ostomy bag was up to 1/3-1/2, or flatulence occurred, we emptied and washed the ostomy bag with warm water by syringe. Meanwhile, we then observed the leakage in the baseplate of the ostomy bag, and replaced it with a new ostomy bag. The ostomy bag was replaced every three to five days if no leakage occurred. If the number of defecation decreased, the stool became thicker, and the patient could defecate spontaneously, and discontinued the ostomy bag.

In the control group, disposable changing mats were placed under the patient's buttock after the catharsis. It was replaced with a new disposable changing mat after the patient defecated. Then, the perineal skin was washed with warm water and dried.

The drainage efficacy of defecation after catharsis, the statistical accuracy of the stool amount, the nursing staff requirements and the time with patients for the two groups was compared. For the control group, after catharsis, we divided the total time required (including the nursing time required for pasting the ostomy bag, defecation, flatulence discharge, washing the ostomy bag, nursing the perineal skin). Total nursing time required was observed (including the nursing time required for placing the changing mats, replacing sheets, nursing perineal and buttock skin) for the period after catharsis of each poisoned patient. The nursing cost and the occurrence of complications in the perineal skin was also observed.

The perineal skin changes were classified into three grades. This included Grade I: moist and redness in the perineal area, with pruritus; Grade II: ulceration and exudation on the perineal skin; Grade III: Ulceration in perineal skin extended into the muscular layer or to the sacral perineum and inguinal[1].

Statistical Analysis

Data were analyzed the data with SPSS 13.0 software (SPSS Inc., Chicago, IL, USA), and all the measurements were expressed by mean ± SD ($x \pm s$). *t*-test was also used and the measurements were analyzed by χ^2 test; $p < 0.05$ was statistically significant.

Results

We compared the results of the mean nursing staff, time and cost in two groups (Table I). In the control group, the mean nursing staff, time and cost decreased significantly ($p < 0.01$ for all comparisons) when compared to the observation group.

Then we compared the number of cases of drainage leakage, perineal and sacrococcygeal skin damages in the two groups (Table II). Compared with the control group, the numbers of cases with drainage leakage, and damage to the perineal and sacrococcygeal skin decreased significantly ($p < 0.01$ for all comparisons).

Discussion

Foreseeable nursing is a comprehensive analysis of the patient's specific condition, which uses medical knowledge to find existing and potential nursing problems, and uses appropriate nursing intervention to prevent risks. The nurse will evaluate the patient based on the physiological changes of the disease and preventive measurements can effectively decrease risks[2]. Active preventive measure-

Table I. The comparison of the mean nursing staff, mean nursing time and mean nursing cost in the AOPP patients in 2 groups of different nursing methods.

Groups	Cases	Mean nursing staff	Mean nursing time	Mean nursing cost
Observation	30	1.38 ± 0.26	0.145 ± 0.042	2.62 ± 0.45
Control	30	4.35 ± 0.37	0.576 ± 0.049	10.45 ± 1.32

AOPP: severe organophosphate pesticide poisoning.

Table II. The comparison of the drainage efficacies and occurrence of complications in AOPP patients in 2 groups of different nursing methods.

Group	Number of cases	Drainage efficacy [% (case)]	Complication: perineal and sacrococcygeal skin damage [% (Case)]		Leakage
			I	II	III
Observation	30	13.3 (4)	6.6 (2)	0 (0)	0 (0)
Control	30	73.3 (22)	40 (12)	6.6 (2)	0 (0)

AOPP: severe organophosphate pesticide poisoning.

ments from nurses are the basis for better nursing and improving the patient's quality of life

Catharsis is an important therapeutic measurement for clearance of absorbed poisonous substances in severe organophosphate poisoned patients. The number of defecations of the patient was up to a dozen daily, with a different volume every time. The stool was watery or like a thin paste, without any regularity, and the toxin in the stool could irritate the skin. Due to frequent defecations and significant skin irritations as well as repeated washing, symptoms such as redness & swelling, eczema and ulceration may occur in the perineal and sacrococcygeal skin. Using disposable changing mats for fecal incontinence, patient could reduce contamination and damage to the skin. However, it does not prevent the occurrence of dermatitis[3]. The advantages of the one-piece ostomy bags[4] for fecal incontinence patients is that it can collect the stools better, protect skin against the irritation, prevent stool dermatitis, control odor and improve patient comfort[5]. Previous studies show that ostomy bags could help to reduce contamination, making it an effective treatment for fecal incontinence and reducing complications significantly[6].

In this study, we found that the application of perineal paste one-piece ostomy bags in organophosphate poisoned patients after catharsis had the following advantages: if the stool amount within the bag was up to 1/3-1/2, or flatulence occurred, it discharged the flatulence in a timely manner. Washing the bag with warm water by syringe after discharge could reduce the range of excreta and skin irritation. The irritation of the excreta to the perineal and sacrococcygeal skin was mild, and the incidence of skin damage decreased. The odor of the excreta diffused in the air, reducing environmental contamination and optimize the ward environment. Frequent change of sheets and clothes could be minimized, as well as the observation of the amount, property and color of the stool could be more accurate.

Conclusions

The time of fecal incontinence in organophosphate poisoned patient after catharsis could be foreseeable. The patient's stool after catharsis was loose and watery. Before flushing, pruritus and redness occurred in the perineal skin. The application of the perineal paste one-piece ostomy bags in severe organophosphate poisoned patients before catharsis could prevent the occurrence of stool dermatitis in perineal and sacrococcygeal skin, thereby reducing the nurses' workload, improve efficiency and enhance nurses' self-esteem.

Conflict of Interest

The Authors declare that there are no conflicts of interest.

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