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INTRODUCTION

Spinal fractures are common in the elderly, primarily due to osteoporosis, with an incidence accounting for 49% of fractures in this population. Surgical internal fixation is the primary treatment, but it is traumatic and can cause significant hemodynamic fluctuations. Elderly patients, with poor physiological tolerance and prolonged anesthesia, face increased risks of delayed recovery and intraoperative hypothermia.

Routine anesthesia management often fails to address hypothermia and postoperative recovery effectively. This study investigates the combined use of thermal insulation nursing (to maintain normothermia) and language arousal nursing (using auditory stimuli to promote neurological recovery) to improve anesthesia recovery outcomes, an area with limited existing research.

MATERIALS AND METHODS

- ▶ **Design:** Randomized Controlled Trial (RCT)
- ▶ **Participants:** 200 elderly patients undergoing spinal fracture surgery (2022)
- ▶ **Groups:**
 - Observation Group (n=100): Received Language Arousal + Thermal Insulation Nursing
 - Control Group (n=100): Received Thermal Insulation Nursing only
- ▶ **Randomization:** Allocated by random number table method.
- ▶ **Baseline:** No significant differences in gender, age, ASA class, or BMI between groups ($P > .05$), ensuring comparability.

Table 1. General Information

Group	Gender (Male/Female)	Age (years)	ASA Classification	BMI (kg/m ²)
Observation	56/44	70.63 ± 3.37	43/57	29.37 ± 2.71
Control	58/42	70.31 ± 3.52	41/59	29.63 ± 2.79

Note: Data presented as mean ± standard deviation (for age and BMI) or count (for ASA classification). There were no significant differences in gender, age, ASA classification, and BMI between the two groups ($P > .05$).

Methods • Randomized control method was used in this study, 200 elderly patients who underwent spinal fracture surgery under general anesthesia between January and December 2022. Among the patients, 100 cases were selected as the observation group, and the other 100 cases were included in the control group by the random number table method. The control group was treated with thermal insulation nursing, and the observation group was given language arousal nursing (a type of care that helps patients regain consciousness after surgery or anesthesia) combined with thermal insulation nursing (A nursing method for maintaining a patient's body temperature in a medical setting).

RESULTS

After the intervention, the observation group showed shorter extubation time, awaking time, eye-opening time, and respiratory recovery time compared to the control group ($P < .05$). Systolic, diastolic, and MAP decreased in both groups after the intervention, with the observation group showing lower values ($P < .05$). Heart rate at 5 and 10 minutes after extubation decreased in both groups, with the observation group having a lower heart rate than the control group ($P < .05$). There were no significant differences in SPO2 between the groups after intervention ($P > .05$). The observation group reported milder pain and a lower incidence of anesthesia-related adverse reactions ($P < .05$). These findings suggest that language arousal nursing combined with heat preservation nursing improves anesthesia recovery in elderly patients undergoing spinal fracture surgery, leading to better outcomes and reduced adverse events.

Table 2. Comparison of clinically relevant indicators between the two groups (t ± s, min)

Group	n	Extubation time	Awake time	Eye opening time	Spontaneous breathing recovery time
Observation group	100	20.68 ± 4.28	18.47 ± 3.21	14.97 ± 2.89	16.57 ± 2.95
Control group	100	23.75 ± 4.56	21.61 ± 3.53	16.82 ± 3.02	18.72 ± 3.27
t		4.67	0.614	2.144	4.892
P value		<.001	<.001	<.001	<.001

Table 3. Comparison of blood pressure indicators between the two groups (t ± s, mmHg)

Group	n	Systolic blood pressure		Diastolic blood pressure		MAP	
		pre-intervention	post-intervention	pre-intervention	post-intervention	pre-intervention	post-intervention
Observation group	100	118.64 ± 5.67	113.42 ± 4.31*	73.58 ± 4.83	63.57 ± 4.16*	88.60 ± 5.11	80.19 ± 4.21*
Control group	100	118.67 ± 5.72	116.75 ± 4.57*	74.26 ± 4.91	66.89 ± 4.37*	89.48 ± 5.18	83.21 ± 4.44*
t		1.257	3.301	0.867	3.502	1.182	3.426
P		.218	<.001	.385	<.001	.339	<.001

aP < .05, compared with that before intervention

Table 4. Comparison of heart rate and SPO2

Group	n	Heart rate (beats/min)			SPO ₂ (%)	
		pre-intervention	extubation 5 min	extubation 10 min	pre-intervention	post-intervention
Observation group	100	90.67 ± 5.71	85.58 ± 5.22*	79.27 ± 4.77	87.89 ± 4.61	97.62 ± 1.34*
Control group	100	91.78 ± 5.87	88.59 ± 5.39*	82.13 ± 4.82	88.52 ± 4.72	97.48 ± 1.32*
t		1.352	4.303	5.692	0.955	0.744
P value		.178	<.001	<.001	.341	.458

aP < .05, compared with that before intervention

Table 5. Comparison of pain degree between the two groups [n(%)]

Group	n	Mild	Moderate	Severe
Observation group	100	56 (56.00)	38 (38.00)	6 (6.00)
Control group	100	37 (37.00)	54 (54.00)	9 (9.00)
Z		2.620		
P value		.009		

Table 6. Comparison of the incidence of anesthesia-related adverse reactions between the two groups [n(%)]

Group	n	Hypotensive	Shiver	Apnea	Low body temperature	Total amount
Observation group	100	2 (2.00)	1 (1.00)	0 (0.00)	1 (1.00)	5 (5.00)
Control group	100	6 (6.00)	3 (3.00)	2 (2.00)	3 (3.00)	14 (14.00)
χ ²				4.711		
P value				.030		

CONCLUSION

Combining language arousal and thermal insulation nursing enhances anesthesia recovery in elderly spinal fracture surgery patients, leading to optimized blood pressure, heart rate, reduced pain, and fewer anesthesia-related adverse events, Language arousal. (Altern Ther Health Med. [E-pub ahead of print].)