

Effect of Active and Passive Music Therapy on the Psychology and Compliance of Children with Prepuce Cerclage

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Abstract: Objective: This research investigated the effects of active and passive music therapy on the psychology with prepuce cerclage. Methods: 89 child patients were randomly divided into the treatment group and the control group. Pains, fears and compliances of two groups were compared. Results: Patients in the treatment group felt less pain and anxiety than the control group. For compliances rated by nurses and surgeons, the treatment group performed better than the control group. Conclusion: Active and passive music therapy could effectively reduce pains, psychology of fear, and improve compliance of children with prepuce cerclage.

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1. Introduction

Music therapy is a therapy that efficiently applies the features of music to achieve physical and psychological improvements of patients in the therapy [1]. In order to promote the music therapy among school-aged children with prepuce cerclage and find the optimal effects, this research found that patients' music selection and active singing with their favorite songs effectively alleviated patients' pains and psychology of fear and improved patients' compliance. The report is hereby reported as follows.

2. Material and Methods

2.1 General Information

The inclusion criteria of research samples were as follows: all conscious school-aged children with prepuce cerclage from February 2011 and August 2012 in our hospital who liked listening to music and singing were included, except patients who did not want to participate or did not sign the informed consent forms. The average age of all included samples was 10.38 ± 1.73 years (the range, 8-13 years). A total of 89 patients conformed to the above requirements. Besides, patients were randomly divided into the treatment group (n=45) and the control group (n=44). Surgeries of two

groups were administered by the same attending physician of our hospital. The operation time varied between 5min and 10min.

2.2 Method

For the treatment group, researchers informed patients and their parents that patients could listen to their selected music and sing with the songs to relieve the psychology of anxiety and pains. After obtaining the permission of patients and parents, the most favoured songs were selected for all patients in this group. All songs added up to about 20min. Patients listened to the music and sang the selected songs before, during and after the surgery.

Patients in the control group listened to our recorded light music.

2.3 Observational Indexes

2.3.1 Pain Scale

Pain scale of patients was tested by VAS (Visual Analogue Scale)[2]. 0 score indicates no pains and 10 score indicates extreme pains.

2.3.2 Compliance Evaluation

The compliance evaluation was conducted by a nurse and an operator. 4 score indicated that patients did not show painful expressions and listened to music quietly with clear surgery field. 3 score indicated that patients showed slightly painful expressions but could continue listening to the music. These patients showed slight limb twisting or struggling, and sometimes would cry out but the surgery field was clear. The operator would occasionally terminate the operation. 2 score indicated that patients showed painful expressions, and the body often struggled or twisted. The earphone was often thrown away. The operator had to frequently stop the operation and indicated the nurse to calm the patient. 1 score indicated patients showed extremely painful expressions and kept crying out. The earphone was often casted off and the body struggled extremely, which changed the patient's position. The operator had to constantly pause the operation and kept asking the nurse to calm the patient.

2.3.3 Fear Scale

The fear scale was evaluated by professional psychological test personnel using Hamilton Anxiety Scale (HAMA)[3]. Evaluation criteria: scores of HAMA vary from 0 to 4, including 5 grades. No symptoms were rated as 0 score, light as 1, medium as 2, heavy as 3 and extremely heavy as 4. Our experiment only selected the first 6 items of HAMA. Therefore, after the operation, if the score is reduced by at least 3, it is noted as significantly effective. A reduction of 2 to 3 was noted as effective. A reduction of at most 2 was noted as ineffective.

2.4 Statistical Method

SPSS13.0 was used for statistical treatment of the data. The measurement data was expressed by the mean \pm standard deviation. Comparison among groups was conducted by independent-samples T test. The comparison of the same group before and after the operation was conducted by paired T test. $P < 0.05$ indicated statistically significant difference of two groups showed.

3. Results

3.1 Comparison of pain scales between two groups (Table 1)

Pain scale of the treatment group was significantly lower than the control group. The difference of two groups showed statistical significance, $P < 0.01$.

Table 1 Intra-operative Pain Scale Comparison between Two Groups ($\pm S$)

Group	Cases	VAS
the treatment group	45	4.96 \pm 1.11
the control group	44	5.84 \pm 1.24
t		-3.559
P		<0.01

3.2 Comparison of HAMA scales between two groups (as shown in Table 2)

The comparison of preoperative anxiety items between two groups showed $P > 0.05$, and the difference did not present statistical significance. In the comparison of postoperative anxiety psychology, tension, insomnia, fear, cognitive function, depressive mood and the total score, scores of all items in the treatment group were lower than the control group. The difference of two groups showed statistical significance ($P < 0.05$).

Table 2 Comparison of Anxiety Symptoms between Two Groups Before and After Operations ($\bar{x} \pm s$)

Item	Before Operation		After Operation			
	Treatment Group (n=45)	Control Group (n=44)	Before Operation t	Treatment Group (n=45)	Control Group (n=44)	After Operation t
Anxiety	1.45 \pm 0.13	1.48 \pm 0.14	1.30 >0.05	0.67 \pm 0.46	1.72 \pm 1.78	4.51 <0.05
Tension	1.61 \pm 0.15	1.56 \pm 0.11	1.77 >0.05	0.56 \pm 0.37	1.58 \pm 0.79	9.24 <0.05
Insomnia	1.40 \pm 0.16	1.42 \pm 0.12	0.82 >0.05	1.17 \pm 0.14	1.56 \pm 0.82	3.88 <0.05
Fear	1.44 \pm 0.13	1.45 \pm 0.11	0.13 >0.05	0.67 \pm 0.11	1.56 \pm 0.81	8.45 <0.05
Cognitive Function	1.20 \pm 0.08	1.24 \pm 0.14	1.76 >0.05	0.66 \pm 0.55	1.34 \pm 0.82	5.30 <0.05
Depressive Mood	1.62 \pm 0.13	1.59 \pm 0.09	1.12 >0.05	0.77 \pm 0.61	1.76 \pm 0.83	7.38 <0.05
Total	7.0 \pm 1.37	6.7 \pm 1.26	1.06 >0.05	3.21 \pm 0.60	7.2 \pm 1.67	17.87 <0.05

3.3 Comparison of compliance outcomes between two groups rated by nurse and operator (as shown in Table 3)

For the compliance rated by nurse and operator, scores of the treatment group were higher than the control group. The difference of two groups showed statistical significance, $P < 0.01$.

Table 3 Comparison of Children's Compliance of Two Groups ($\pm S$)

Group	Case Number	Compliance rated by nurse	Compliance rated by operator
The Treatment Group	45	3.53 \pm 0.55	3.04 \pm 0.74
The Control Group	44	2.68 \pm 0.64	2.55 \pm 0.50
t		6.756	3.720
p		<0.01	<0.01

4. Discussion

Prepuce cerclage is a common and mature surgery for children with phimosis and redundant prepuce [4]. Under local anesthesia, some children receiving the prepuce cerclage will feel intensive tension and fears, showing body wiggling and crying. This severely influences the smooth operation. Studies showed that as a key approach of healing or diagnosing a disease, surgery is not only a physical stimulus to patients but also a serious psychological stimulus[5]. Therefore, the caring of children in the perioperative period becomes remarkably important. Music is a common language for human kind. It could help patients away from negative stimulus such as pains or anxiety. When listening to the music, patients could enter their familiar and comfort zones, shift the attention on pains and relieve patients' pains and psychology of fear[6]. Studies on children in two groups showed that in terms of pain scale, scores of the treatment group were lower than the control group, demonstrating that children in the treatment group felt less pain than the control group. $P < 0.01$ indicated that the difference of two groups showed statistical significance. In terms of HAMA scales before and after the operation between two groups, the comparison of anxiety items and total score of children before the treatment showed $P > 0.05$, and the difference presented no statistical significance. After the treatment, in the comparison of postoperative anxiety psychology, tension, insomnia, fear, cognitive function, depressive mood and the total score, scores of all items in the treatment group were lower than the control group. The difference of two groups showed

statistical significance ($P < 0.05$). The results presented that children of the treatment group felt less pain and anxiety than the control group. For the compliance rated by nurse and operator, scores of the treatment group were higher than the control group. The difference of two groups showed statistical significance, $P < 0.01$. This demonstrated that children of the treatment group presented higher degrees of cooperation in surgery than the control group. Our findings also showed that in terms of background music, school-aged children between 8 and 13 years felt nursery rhymes too naïve. Meanwhile, classic music and light music cannot fully attract patients' attention due to their limited education background, music appreciation ability and children's intensive tension and fears. Moreover, some patients were not interested in such music unfamiliar to them, and some even got rid of the earphone, showing a resistant mood, even restlessness and refusal. Therefore, in our research, songs were selected by child patients themselves and children were encouraged to sing with the songs. In this way, children were soon attracted by their favored and they need to pay particular attention to music in order to follow up the rhythm and sing with it. Thus, this approach effectively shifted their attention, alleviated their fears and relaxed children. The cheering mood reduced patients' sensitivity to pains and increased the pain threshold. During the operation, the restlessness was minimized, which effectively improved the compliance.

5. Conclusion

To sum up, our clinical experiments presented that selecting the appropriate music therapy could efficiently shift children's attention, alleviate the psychology of fear for operations, and improve their compliance. It can meet the physical and psychological needs of patients and promote their recovery. Thus, it is a therapy worthy extensive application.

Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

Statement

In this paper all contents involving human subjects have performed procedures for the protection of chil-

dren's rights, and pass IRB approval in LuZhou medical college, Sichuan province, China.

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