

Music Analgesia Used in Delivery of Pregnant Women

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Abstract: Music therapy is one of the non-drug labor analgesia methods advocated during labor, which can relieve labor pain and anxiety and promote natural childbirth. The author here from the definition of music therapy, physiological principles, for labor analgesia on maternal and neonatal effects, as well as music therapy and doula accompany childbirth combined application effect were reviewed.

Keywords: Music Therapy; Childbirth; Non-Drug Analgesia

Introduction

Labor pain is the most severe pain experienced by most women in their lives ^[1]. Pregnant women are often accompanied by strong physiological and psychological stress during childbirth, such as tension, anxiety, fear, dystocia, postpartum hemorrhage, neonatal asphyxia and other adverse outcomes, which seriously threaten maternal and child health and life safety ^[2]. How to effectively alleviate the fear and tension of parturients in childbirth and improve the rate of natural delivery as much as possible is one of the focuses of current obstetric work^[3]. Reducing childbirth pain is the main factor to relieve the anxiety of pregnant women. The American College of Obstetricians and Gynecologists (ACOG) believes that medical staff should reduce maternal labor pain as much as possible. Non-drug analgesic side effects of small, by domestic and foreign scholars respected ^[4]. In the article "Study on the Relieving Effect of Music on Analgesia". The experimental results of the subjects showed that under the condition of music stimulation, the pain threshold of the subjects increased by 20.23 % on average ($p < 0.01$). The pain tolerance threshold increased by 11.84 % ($p < 0.01$). In addition, the study found that the use of music and noise in dental surgery, a combination of methods, 65 % of patients with pain completely disappeared. In clinical trials, music is widely used in surgery to reduce the dose of anesthetics by 50 %. In addition, music can completely or mostly replace analgesic drugs in the postoperative recovery period to avoid the harm of analgesic drugs to the brain^[5-6].

1. Definition of music therapy

Music therapy is the application and development of music beyond the traditional field of art appreciation and aesthetics. Music therapy is a systematic intervention process. In this process, the therapist uses music to experience various forms, as well as the therapeutic relationship developed in the course of treatment, as the driving force of treatment to help the treated achieve health.

2. Physiological Principle of Music Analgesia

2.1 Neural pathway of sound analgesia

Scientists have found that sounds 5 decibels larger than environmental sounds have analgesic effects in mice. To explore the brain circuits behind the pain-alleviation effect of this 5-decibel low-intensity sound, the team used adeno-associated virus combined with fluorescent proteins to track connections between brain regions, monitoring neuronal activity in different brain regions of awake mice in real time. Researchers found that 5 decibels of low-intensity sound blocked glutamatergic neurons in the auditory cortex from releasing glutamate into the posterior thalamic nucleus and ventral postmedial nucleus, inhibiting activation of downstream neural pathways. In the absence of sound, inhibition of this thalamus pathway by optogenetics or chemical genetics can simulate the effect of low-intensity sound on pain relief, and activation of this pathway restores sensitivity to pain. Finally, scientists determined the route from the auditory cortex to the thalamus, which receives and processes information about sounds, and the thalamus acts as a relay station for sensory signals from the body.

2.2 Maternal music analgesia

Music analgesia delivery can effectively relieve maternal childbirth pain. The reason is that in the human cerebral cortex, when a nerve center is excited, it inhibits other nerve centers around it. Human auditory center and pain center are located in the temporal lobe of the brain. Therefore, when music stimulates the maternal auditory nerve, the surrounding pain nerve center is inhibited. It may also be because the maternal after receiving music stimulation will secrete endorphin, and endorphin has a strong analgesic effect, thus receiving music analgesia childbirth maternal pain feeling reduced [7]. In addition, when stimulated by soothing music, the mother's attention is diverted from the birth event, reducing the focus on pain, which in turn reduces pain sensation [8].

3. Music painless childbirth method

Music is widely used during childbirth. Although the main purpose of using music during childbirth is still to reduce labor pain, the method is relatively complex.

Music painless childbirth method consists of three parts: music-lamaz relaxation training, music imagination training, and music labor analgesia. The entire musical intervention usually begins the week before the due date. The first stage of music-lamaz relaxation training can use the rhythm of music to help pregnant women breathe and relax so that pregnant women can relax after entering the labor process, breathe correctly, save physical strength, and cooperate with medical staff correctly when the baby is delivered. The second stage of the musical imagination can help pregnant women in the heart to establish a positive psychological expectation during childbirth to eliminate tension and fear. During the third stage of childbirth, the use of music, especially familiar music, can help reduce and eliminate pain during childbirth.

4. The effect of music therapy on maternal

4.1 Relieved pain

Studies have shown that music therapy as a non-drug adjuvant intervention has a good effect on reducing pain, anxiety, enhancing comfort and promoting recovery. Simavli et al. [9] also showed that listening to music during childbirth had a positive effect on labor pain and anxiety, and met the analgesic needs of pregnant women. Liu et al. [10] found that music can effectively reduce the labor pain in the latent period (2 ~ 4 cm). Domestic Dong Qiuping et al. [11]

4.2 Relieve maternal stress and anxiety

Domestic and foreign studies have shown that music therapy can reduce maternal stress and relieve anxiety. The study of Liu et al. [11] suggested that music therapy can alleviate the anxiety of maternal latency. Zhang Yan [12] By detecting maternal stress during the second stage of labor, it can be seen that the observation group collected peripheral blood to detect renin (R), epinephrine (E), norepinephrine (NE) and angiotensin II. The level of ATII was significantly lower than that of the control group, indicating that music therapy and motivational psychotherapy were helpful to alleviate the stress state during childbirth and had a positive effect on alleviating negative emotions.

4.3 Increase natural birth rate

Music therapy can promote natural childbirth. Qian Hong et al [13] showed that music intervention had a good effect on the psychology of maternal childbirth, accelerated the progress of labor, and promoted natural childbirth. He et al. [14] Studies have shown that music therapy can significantly shorten the first and second stages of labor. Dong Qiuping et al. [11] also showed that music therapy significantly shortened the active period and the second stage of labor.

5. Combined Application of Music Therapy and Other Methods

5.1 Combined Application of Music Therapy and Doula Accompanying

Childbirth

Clinically, the effect of doula delivery combined with music therapy is ideal in the process of maternal delivery. The two play a role in different ways, effectively reducing the degree of labor pain and relieving fear. The performer massaged the abdomen of the parturient, communicated and communicated with it, diverted their attention, and played soft music for the parturient, controlling the volume below 70 dB until the cervix of the parturient was completely opened.[15]

6. Nodule

Music analgesia delivery is a new type of natural analgesia delivery without side effects and drug intervention. Based on the different stages of labor and maternal various physical and psychological needs and feelings, the scientific use of music, combined with breathing, relaxation, free position, guided music accompaniment, delivery ball, touch, massage and other methods for a series of services, can effectively relieve labor pain, shorten the labor time, improve the success rate of natural childbirth. In addition, music analgesia delivery method can improve maternal respiratory skills, guide correct breathing, breath holding and use of strength, and reduce the incidence of neonatal asphyxia by shortening the labor process. Music analgesia delivery is worthy of further promotion.

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