

# Music therapy in children affected by brain tumors

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Children affected by brain tumors experience significant levels of anxiety, nervousness, and fear regarding surgery, especially in the preoperative stages. The operating room can be an intimidating environment for them, and preoperative anxiety can adversely affect postoperative pain.<sup>1</sup>

Interest is growing in finding non-pharmacological means that may be used to reduce these symptoms.

Music sessions are increasingly used in patients undergoing neurosurgery for this purpose.<sup>2</sup>

Regarding the relationship between music and human brain, some studies compare the functioning of the nervous system as the ability of a large orchestra to express a full range of melodies and rhythms, as well as various and complex harmonic solutions.<sup>3</sup>

Passive listening to pre-recorded music provided to the patient by nurses or by other medical staff to offer additional comfort is considered as music medicine. Instead, music therapy (MT) involves the systematic use of musical experiences aimed at achieving therapeutic goals by a trained music therapist (MTt) and implies the establishment of a relationship among patient, music, and MTt.<sup>4</sup>

In a recent study, our multidisciplinary team evaluated positively the influence of MT on preoperative anxiety during lumbar puncture and bone marrow aspiration in pediatric oncology patients.<sup>5</sup> Therefore, in the last 18 months, we introduced and evaluated prospectively MT in the preoperative setting of all children affected by brain tumors undergoing neurosurgery in our department. When clinically feasible (it was been possible to enroll 10 out of 23 patients), inpatient children aged 1–18 years received from 1 to 3 bedside individual sessions of MT prior to surgery by a certified MTt, with the collaboration of a psycho-oncologist. An interactive relational approach, developed from the model of “free improvisation therapy,” was used.<sup>6</sup> The MT intervention includes

both active techniques that involve the use of various musical instruments, singing and songwriting, and receptive techniques such as preparing and listening to a personalized playlist.

The choice of music was based on individual assessment of each child.<sup>7</sup>

The MTt accompanied the patient and parents into the operating theater and the MT—both active and receptive—continued until the patient was fully anesthetized.

MT was integrated into patient care before anesthesia and also throughout the interactive preparation for surgery. This enabled the children to feel secure and confident during the ensuing procedures.

Their attention was distracted from the operation and the time spent waiting for it, providing an impression of strong support and making the patients into active participants rather than passive recipients of the surgical procedure.<sup>8,9</sup>

We found that all children receiving MT interacted with the MTt undisturbedly and independently were more compliant with treatments, with accepting to enter the operating room comfortably, and with less fear. The beneficial effect of MT reflected also on the clinical staff, which felt more confident and serene.

To our knowledge, this is the first report on the application of MT on pediatric oncological neurosurgery in the literature. On the basis of this initial experience, we designed a larger prospective study in children affected by brain tumors to provide reliable estimates of the effects of MT in the preoperative and postoperative management of these patients.

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