

## Music and Anesthesia

Patients referred for surgery experience varying degrees of perioperative anxiety and fear. This can contribute for changes in cardiovascular parameters, as well as potentiates the severity of postoperative pain. The anesthesiologist tries to reduce the magnitude of the problem by administering tranquilizers, of which benzodiazepines are the most effective. But those drugs have side effects, such as agitation, hyperactivity, and prolonged amnesia<sup>1</sup>. Amnesia imposes an additional problem, especially in outpatients, who might not recall the instructions given before being discharged from the hospital<sup>2</sup>. Thus, other modalities to control perioperative anxiety and fear are certainly welcome.

Music therapy has been used in several areas of medicine, such as psychiatric, care of terminally-ill patients, and intensive care units.

For several years, many studies on the effectivity of music therapy in the control of perioperative anxiety and postoperative pain have been published. In those studies, relaxing music, excluding classic music and with high dynamic amplitude, which causes extreme hyperactivity, has always been used.

Thus, Lepage et al.<sup>3</sup> observed that music therapy decreases the consumption of sedative drugs during spinal anesthesia. Leardi et al.<sup>4</sup> observed a reduction of the stress response to intraoperative relaxing music in outpatients. Berbel et al.<sup>5</sup> compared preoperative music with diazepam and they concluded that music is as effective as benzodiazepines in the control of anxiety. Studies on the postoperative period have shown that patients exposed to music require less rescue analgesics and they can be mobilized earlier after the surgery when compared to the control group<sup>6,7</sup>.

Midazolam is the benzodiazepine used more often in standard pre-medication, especially in outpatients. Recently, Bringman et al.<sup>8</sup> compared the effects of pre-me-

dication with oral midazolam with those of relaxing music on the prevention of preoperative anxiety, and they concluded that music causes a greater reduction in the level of preoperative anxiety than midazolam. In those studies, patients listen to music through earphones connected to a CD-player. When evaluating the degree of anxiety, the STAI scale (State Trait Anxiety Inventory), which encompasses 20 questions on how the individual feels at the moment of the investigation, has been used<sup>9</sup>.

Music should be carefully selected by a music therapist, and it should include both classical and non-classical music, but always with a soft tone and low dynamic amplitude, such as Albinoni's Adagio and Bach's Aria, among the first, and Feelings and Smile, among the last ones.

Unlike benzodiazepines, therapy with relaxing music is devoid of adverse effects, representing an advantage of this type of treatment. In the study of Bringman et al.<sup>8</sup>, some patients in the midazolam group were not able to finish the STAI scale formulary to evaluate the degree of anxiety because they were sedated. Another side effect of benzodiazepines in the postoperative period is described as "hangover".

Regardless of the mechanism, there are enough indications that relaxing music is effective in the control of apprehension and activation of the autonomous nervous system caused by perioperative anxiety. Based on this, the implantation of programs of perioperative music therapy by anesthesiologists, especially in the outpatient population, is advisable. And although conclusive data regarding this issue is not available, the implantation of similar programs in operating rooms would also be desirable: it is possible that all the elements of this environment, such as physicians and paramedics, would also benefit from the reduction of stress manifestations, inherent to their work, provided by relaxing music.

*José Roberto Nociti, TSA*

*Member of the Editorial Board of Revista Brasileira de Anestesiologia  
Responsible for the CET/SBA of Santa Casa de Misericórdia de Ribeirão Preto, SP*

## REFERÊNCIAS / REFERENCES

01. Weinbroum AA, Szold O, Ogorek D et al. – The midazolam: induced paradox phenomenon is reversible by flumazenil. *Epidemiology, patient characteristics and review of the literature. Eur J Anesthesiol*, 2001;18:789-797.
02. De Witte JL, Alegret C, Sessler DI et al. – Preoperative alprazolam reduces anxiety in ambulatory surgery patients: a comparison with oral midazolam. *Anesth Analg*, 2002;95:1601-1606.
03. Lepage C, Drolet P, Girard M et al. – Music decreases sedative requirements during spinal anesthesia. *Anesth Analg*, 2001;93:912-916.
04. Leardi S, Pietroletti R, Angeloni G et al. – Randomised clinical trial examining the effect of music therapy in stress response to day surgery. *Br J Surg*, 2007;94:943-947.
05. Berbel P, Moix J, Quintana S – Estudio comparativo de la eficacia de la musica frente al diazepam para disminuir la ansiedad prequirurgica: un ensayo clinico controlado y aleatorizado. *Rev Esp Anesthesiol Reanim*, 2007;54:355-358.
06. Nilsson U, Rawal N, Unestahl LE et al. – Improved recovery after music and therapeutic suggestions during general anaesthesia: a double-blind randomized controlled trial. *Acta Anaesthesiol Scand*, 2001;45:812-817.
07. Nilsson U, Rawal N, Unosson M – A comparison of intra-operative or postoperative exposure to music – a controlled trial of the effects on postoperative pain. *Anaesthesia*, 2003;58:699-703.
08. Bringman H, Giesecke K, Thorne A et al. – Relaxing music as pre-medication before surgery: a randomized controlled trial. *Acta Anesthesiol Scand*, 2009;53:759-764.
09. Burns JL, Labbe E, Arke B et al. – The effects of different types of music on perceived and physiological measures of stress. *J Music Ther*, 2002;39:101-116.