



KEY POINT SUMMARY

OBJECTIVES

This study explored the influence of music on stress in a sample of patients on ventilation support.

DESIGN IMPLICATIONS

Managing stress in critically ill patients is important as unmitigated stress can be detrimental. Therefore, healthcare providers need effective interventions with minimum side effects that can lessen patient stress.

Nonpharmacologic interventions such as patient-directed music hold great promise.

Does Music Influence Stress in Mechanically Ventilated Patients?

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Key Concepts/Context

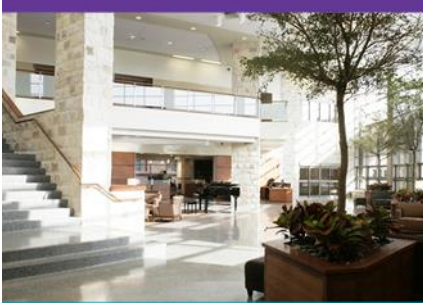
Many critically ill patients find that mechanical ventilator is stressful. Often, healthcare providers manage that stress with sedatives. However, as with most medications, the drugs may have side effects. For this and other reasons, many healthcare professionals prefer to try nonpharmacologic interventions first before administering sedative agents. The researchers in this article hypothesized that mechanically ventilated patients who self-initiated music listening would experience less stress than patients who did not listen to music.

Methods

In this randomized controlled study, patients in 12 Midwestern intensive care units (ICUs) on ventilator support were assigned to one of three groups: (1) patient-directed music (PDM), where patients self-initiated music listening whenever they wanted from a preferred collection; (2) headphones only to block ICU noise; or (3) usual ICU care. Researchers collected 24-hour urinary cortisol samples from a subset of subjects with normal renal function and who were not taking any medications that influence cortisol levels ($n = 65$) to use as the main outcome measure. (Urinary free cortisol (UFC) is an integrative biomarker of stress.)

Findings

Controlling for illness severity, gender, and baseline UFC (29–45 mg/day), mixed models data analysis showed no significant differences among groups in UFC over the course of ventilator support. The authors conclude that, while music did not significantly reduce cortisol, data revealed less profound spikes in UFC levels. However, given the limitations of the research, this observation could have occurred merely by chance.



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Limitations

The limited number of eligible subjects for urine collection and the extreme variability among UFC within and among study groups made it difficult to detect any significant differences. A couple issues converged to weaken the results: the PDM group subjects were in the study for a significantly shorter time, limiting the number of repeated measures of cortisol for comparisons. Researchers were only able to collect an average of 1.5 cortisol levels per week per patient. Adequate sample sizes in mixed models depend on differences in the rate of change between groups, the time span, and the number of repeated measures. The investigators did not assay the collected urine for cortisone, an important component to consider when interpreting UFC levels. Further, the researchers did not freeze any aliquots of urine for future testing or for verification of any discrepancies among values. In addition, they posted UFC results to the electronic medical record in total mg/day, not micrograms/day, which makes direct comparison of findings to those reported by other investigators impossible. Finally, the authors did not specifically examine study subjects' adrenal function (because it affects cortisol levels), which may have provided some insight into the UFC values. The question remains as to whether this sample of mechanically ventilated patients had attenuated to stress and/or experienced adrenal fatigue from prolonged ICU stays and periods of ventilator support.