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Listening to music during ambulatory ophthalmic surgery reduced blood pressure, heart rate, and perceived stress

Allen K, Golden LH, Izzo JL Jr, et al. *Normalization of hypertensive responses during ambulatory surgical stress by perioperative music.* *Psychosom Med* 2001 May-Jun;63:487-92.

QUESTION: Does listening to self selected music during ambulatory ophthalmic surgery reduce blood pressure (BP), heart rate (HR), and perceived levels of stress in elderly patients?

Music v no music for elderly patients having ambulatory ophthalmic surgery*

Outcomes	Time of assessment	Mean rate		Mean difference (95% CI)
		Music	No music	
Heart rate (beats/min)	Before surgery	74	81	7 (1.6 to 12.4)
	During surgery	70	82	12 (7.2 to 16.8)
	After surgery	68	78	10 (5.3 to 14.7)
Systolic blood pressure (mm Hg)	Before surgery	132	152	20 (13.3 to 26.7)
	During surgery	128	156	28 (21.5 to 34.5)
	After surgery	123	141	18 (10.1 to 25.9)
Diastolic blood pressure (mm Hg)	Before surgery	85	90	5 (1.7 to 8.3)
	During surgery	82	91	9 (6.1 to 11.9)
	After surgery	68	75	7 (4.4 to 9.6)

*Mean difference and CI calculated from data in article.

COMMENTARY

Much has already been written about preoperative anxiety and the benefits for patients in its alleviation,¹⁻³ but little has been published on perioperative anxiety. It is a widely held belief that music aids relaxation, and Allen *et al* evaluate the effect of music on anxiety in the perioperative period.

40 patients from the operating lists of 2 ophthalmic surgeons participated in the study. The small sample drawn from those undergoing only one type of surgery may predetermine the physiological and psychological characteristics of the population. However, the results of this trial will still be useful for nurses working with those having ophthalmic and other forms of ambulatory surgery. The 2 surgeons were randomised rather than the patients, and this cluster randomisation could influence the extent to which the patient groups were equivalent. Many variables that could affect anxiety were not reported (eg, length of surgery and preoperative wait), and although it is reported that there were no statistically significant differences between the groups in these respects, the statistical tests could only detect very large differences. Also, the patients in the music (intervention) group were given a choice of music, therefore giving them some control. This in itself could reduce anxiety.⁴

Data analysis revealed a statistically significant reduction in HR and BP in the music group compared with the control group. The overall conclusions of the authors appear to be well supported by the agreement between patients' reports of perceived stress and physiological measures.

Despite some of the limitations of the study and the issue of whether reductions in anxiety are a result of the music, patient control over choice, or the distraction of listening, nurses can use the findings easily and safely to the benefit of patients.

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- 3 Kendall PC, Watson D. *Psychological preparation for stressful medical procedures*. In: Prokop CK, Bradley LA, editors. *Medical psychology: contributions to behavioural medicine*. New York: Academic Press, 1981:197-221.
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Design

Cluster randomised (unclear allocation concealment), unblinded, controlled trial with follow up to the postoperative period.

Setting

A university medical centre in Buffalo, New York, USA.

Patients

40 patients who were 51-88 years of age (mean age 76 y, 75% women) and were having ophthalmic surgery (all but 2 were having surgery for removal of cataracts). 21 patients had drug controlled hypertension, and drug treatment was not discontinued on the day of surgery. Follow up was complete.

Intervention

Surgeons (n=2) were allocated to music (20 patients) or no music (20 patients). Patients in the music group were given stereo headphones, a cassette player, and a choice of 22 types of music (including soft hits, classical guitar, chamber music, and folk music); patients listened to their selected music during the preoperative, surgical, and postoperative periods. All patients received midazolam hydrochloride and alfentanil hydrochloride. Special care was taken to give equal amounts of attention to both groups.

Main outcome measures

HR and BP were assessed 1 week before surgery, on the day of surgery (baseline), in the preoperative period, during surgery, and after surgery. Cognitive appraisal of stress and coping was assessed using 7 point Likert scales at baseline, in the preoperative period, and after surgery.

Main results

Patients in the music group had lower HR and BP levels than patients in the no music group in the preoperative period, during surgery, and after surgery ($p < 0.001$) (table). Patients in the music group reported lower levels of perceived stress and higher ratings of coping after surgery than the no music group ($p < 0.01$).

Conclusion

Listening to self selected music during ambulatory ophthalmic surgery reduced heart rate, blood pressure, and level of perceived stress and improved coping in elderly patients.