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THE EFFECT OF MUSIC ON HEART RATE AND MOTION ARTEFACTS DURING GAMMA CAMERA ACQUISITION FOR MYOCARDIAL PERFUSION SCINTIGRAPHY

AIM

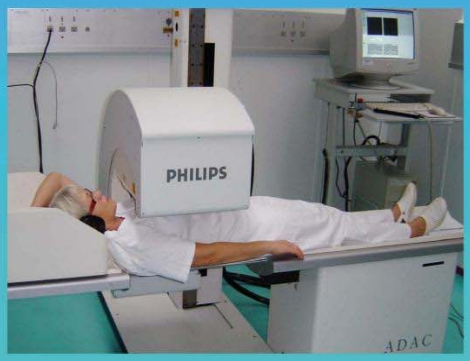
To evaluate the effect of music composed with the purpose of being calming on: heart rate, motion artefacts, and patient well-being during image acquisition in myocardial perfusion imaging.

BACKGROUND AND METHODS

Music has been used in combination with treatment through thousands of years especially in Arabian countries, India, Greece and China. Music is used for reducing patient anxiety during surgical procedures and neuropsychological treatments. Our test hypothesis was that music can relax patients during gamma camera acquisition of myocardial perfusion scintigrams and thus improve imaging and patient well-being simultaneously.

124 patients referred for myocardial perfusion imaging on the suspicion of ischemic heart disease were included in a randomised cross over study. Only studies with successful gating at both rest and stress image acquisition were included. 50 patients listened to music during acquisition of rest images and without music during stress image acquisition and 51 patients did vice versa. The study comprised 50 women and 51 men. Patients with reduced hearing, arrhythmia and/or pacemaker, dementia or dyslexia were not included.

After the perfusion scintigraphy was performed the patients were asked to fill out a questionnaire on their opinion of the effect of the music.



They were asked;

- wether they liked the music
- if they preferred to select music themselves
- if they found the music to be relaxing-, distressing-, or without effect

The music in use was MusiCure. It is composed with the purpose of creating a relaxed atmosphere. The music is non vocal, slow in tempo, and performed with both acoustic and electric instruments as well as sounds from live nature.

Table 1

	Music at stress N = 51	T-test	Music at rest N = 50
	Mean (± 1 SD)	p	Mean (± 1 SD)
Change in HR during rest acq. (bpm)	-0.5 (4.1)	n.s.	0.1 (4.1)
Change in HR during stress acq. (bpm)	-0.8 (3,3)	0.009	-3,2 (5.3)

RESULTS

Among patients who did not listen to music there was a significant decline in heart rate during stress image acquisition (Table 1). This decline in heart rate was significant for women alone; -4.2 (±5.9) bpm, (p=0.01) but not for men; -2.4 (±4.7) bpm, (p=0.3). Regardless of music being played or not there was no significant effect on heart rate during rest acquisition and there was no difference in the frequency or severity of motion artefacts. 92% of the patients preferred to listen to music during image acquisition(Figure 1), and 51% would prefer free choise of music. (Figure 2). 79% of the patients declared that the music had a calming effect, 18% no effect, and 3% found it to be distressing (Figure 3).

CONCLUSION

Listening to music during image acquisition for myocardial perfusion scintigraphy after stress test prevents a decline in heart rate particularly among women and has no adverse effects on the frequency and severity of motion artefacts. A more stable heart frequency during acquisition may in theory improve the quality of quantitiative analyses. Overall, music can be recommended during image acquisition since a vast majority of patients preferred to listen to music and no increase in motion artefacts could be shown.

Figure 1

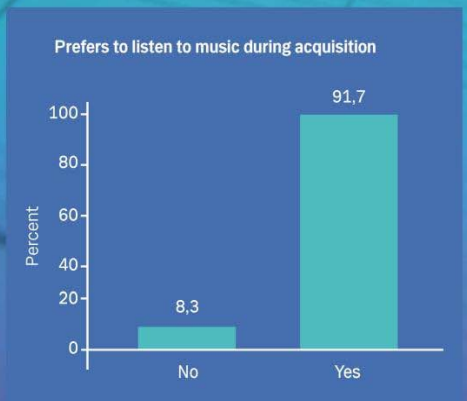


Figure 2

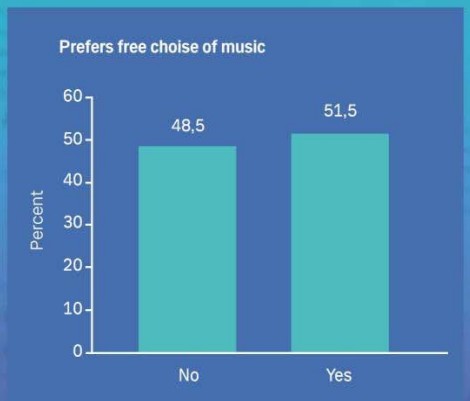
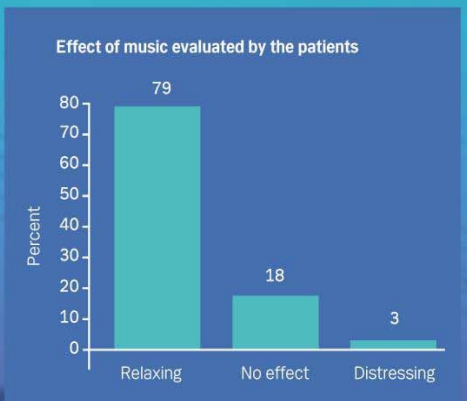


Figure 3



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