# Abstract

The leading cause of hospital Deaths in Sri Lanka is Ischaemic Heart Disease[1]. A gradual crease of morbidities and mortalities due to Ischaemic heart disease has been observed for the last 2 – 3 decades. Other than medical and surgical management, life style changes and alternative therapies such as relaxing music have also been identified as a treatment for coronary artery disease. However, hardly any scientific study has been performed to recognize the actual clinical effect of music in ischaemic heart disease. Therefore, the aims of the current study were to design and compose a music based on Hindustani classical system, to describe the effect of the composed music on selected aspects of cardio respiratory physiology of asymptomatic individuals and on some aspects of the clinical profile (based on symptoms and the state of ischaemia) and on the quality of life in chronic stable angina patients aged 45 to 65 years. A community based randomised intervention study was conducted to describe the effect of music on selected aspects of cardio respiratory physiology of 252 asymptomatic individuals and a hospital based single blind randomised clinical trial was conducted to assess the clinical profile and the quality of life of 60 stable angina patients.

A new music track composed from Rag Dharbari Kanada was used as the intervention tool. In the community based study, 127 individuals in the study group listened to the composed music till the end of track (about 22 minutes) and the control group was kept silent during the same period. Before the commencement of the study and after the intervention systolic and diastolic blood pressure, pulse rate and respiratory rate of the study individuals were measured. A statistically significant reduction in systolic blood pressure by 8.53 mmHg, diastolic blood pressure by 5.8 mmHg, Pulse rate by 5.16 bpm and respiratory rate by 2.55 per minutes were observed in the study group after listening to the music ($p<0.01$) but in the control group changes observed during the period of intervention were not significant ($p>0.05$). The reduction in each parameter after listening to music did not depend on the type of gender, age group, education level, practising a relaxation technique and the preferred type of music.

In the hospital based study, by restricted randomization technique 30 stable angina patients were recruited to two groups, study and control. The study group was provided with the composed music track to be listened at home till the end of the music track

(about 22 minutes) twice a day for a period of one month complementary to their regular drug treatment and the control group was kept only on their regular treatment. Both groups were assessed before the commencement of the study and after a period of one month for clinical profile assessed by symptoms and state of ischaemia and for the quality of life. Assessment of the severity of the symptoms was based on Canadian classification of angina guidelines and the details of the treatment for the chest pain. The state of ischaemia was measured by Exercise ECG results. The validated Sinhala version of SF – 36 quality of life questionnaire was used to assess the quality of life of the patients. The study group had shown a significant improvement in every aspect of the symptoms at $p=0.05$ and $p=0.01$ and in the treatment of chest pain ($p<0.01$) after listening to music compared to the non significant change observed in the control group after the period of one month ($p>0.05$). A statistically significant increase in mean exercise duration by 123 s ($p<0.01$), at the stage the test was terminated ($p<0.01$), Maximum MET level achieved by 2.1 ($p<0.01$), the time until 1 mm ST depression by 127.3 s ($p<0.01$) and the time until maximum ST segment depression by 85.9 s ($p<0.01$) were observed in the study group. The reduction observed for the mean maximal ST segment depression was 0.55 mm which was significant ($p<0.01$). But the reduction observed in the mean heart rate was not significant. A statistically significant increase in the scores for all eight components of the quality of life in the study group was observed after listening to music for one month. The increase of scores for physical function was 16.17 ($p<0.01$), for role-physical – 40.83 ($p<0.01$), for body pain – 11.03 ($p<0.01$), for general health – 17.9 ($p<0.01$), for vitality – 17 ($p<0.01$), for social functioning – 15.37, for role emotional – 37.87($p<0.01$) and for mental health – 16.66 ($p<0.01$). The overall quality of life also improved in the study group. The overall physical health by 20.6 ($p<0.01$), the overall mental health by 20.84 ($p<0.01$) and the total score of quality of life by 21.6 had increased in the study group after the intervention. But no statistically significant improvement was observed in the control group.

As the composed music reduced the cardio respiratory physiological parameters and as it improved the severity of the disease and the quality of life of stable angina patients, long term listening to the composed music can be considered to reduce the prevalence of the morbidities in cardio vascular system and long term listening to the composed music complementary to regular treatment can be considered to reduce the severity and to improve the quality of life of the patients with cardio vascular disease.