



Effect of Thai instrumental folk music on blood pressure: A randomized controlled trial in stage-2 hypertensive patients

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ABSTRACT

Background: From epidemiologic data, half of hypertensive patients did not achieve the target blood pressure with pharmacotherapy, partly due to poor compliance. Music therapy is an adjunctive therapy which was proved effective for blood pressure reduction. We aimed to investigate the effect of Thai instrumental folk music listening on blood pressure in Thai hypertensive patients.

Design, setting and subjects: A randomized controlled trial, conducted in the stage-2 hypertensive patients at Srinagarind Hospital, Khon Kaen, Thailand.

Methods: One hundred-twenty participants were randomized to music listening group and control group (1:1). The music listening group was assigned to listen to Thai instrumental folk music once a day for one month.

Outcome measures: The primary and secondary outcome measures were home blood pressure (Day 0th and 30th) and office blood pressure (Day 0th and 120th), respectively.

Results: Home systolic blood pressure (SBP) and diastolic blood pressure (DBP) in the music listening group were significantly reduced compared with baseline (-9.5 ± 7.1 mmHg (95%CI $-11.43, -7.64$) and -6.1 ± 5.7 mmHg (95%CI $-7.51, -4.53$), respectively). Both home SBP and DBP at day 30th of the music listening group were significantly lower than in the control group (-6.0 mmHg (95%CI $-8.58, -3.40$) and -3.15 mmHg (95%CI $-5.20, -1.09$), respectively), while the differences of office SBP and DBP between two groups were not significant.

Conclusion: This study demonstrated that Thai instrumental folk music listening was effective for SBP and DBP reduction in stage-2 HT patients. This therapy can be used as an alternating approach simultaneously with pharmacological treatment.

This trial was registered retrospectively after completion to ClinicalTrials.gov registration number: NCT03381820.

What is known about the topic?

- Poor control hypertension is associated with increased risk of fatal and non-fatal cardiovascular events. Unfortunately, due to low adherence and compliance of antihypertensive drugs, only 50% of patients achieved the blood pressure target. Existing studies have shown that music therapy was a promising adjunctive approach for blood pressure lowering. However, the effect of music therapy on systolic blood pressure and diastolic blood pressure was inconsistent among studies.

What this study adds?

- The results from this study demonstrated the favorable outcome of the Thai instrumental folk music listening for lowering the SBP and DBP in patients with stage-2 hypertension. It proves that music listening therapy is effective and safe as an adjunctive approach with pharmacological treatment, especially at the present time when lower BP target ($< 130/80$ mmHg) has been proposed by the latest hypertension guidelines for primary and secondary prevention of cardiovascular event.

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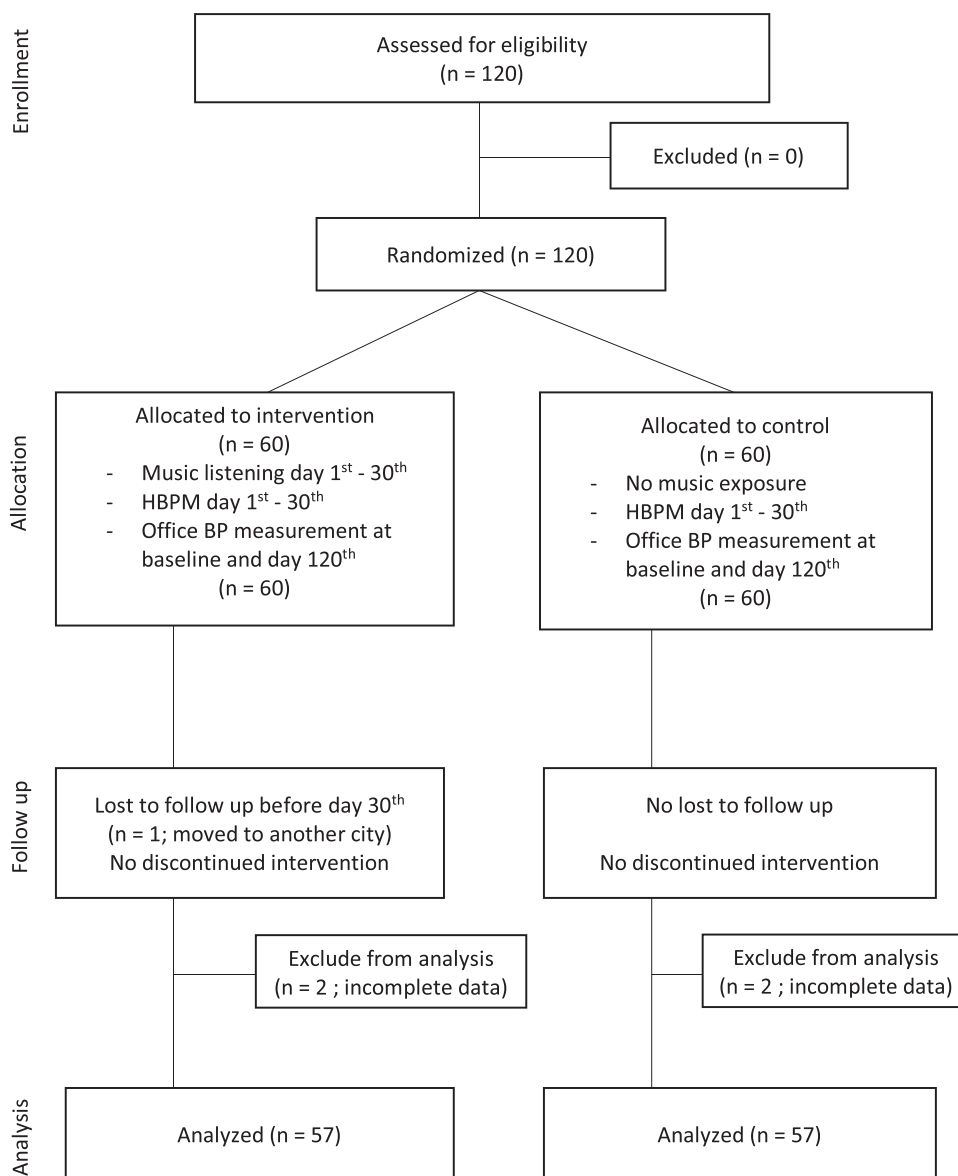


Fig. 1. Consort diagram. The Flow diagram of the progress through the phases of a parallel randomized trial of two groups.

1. Introduction

Poor control hypertension (HT) is associated with increased risk of fatal and non-fatal cardiovascular events.¹ However, due to low adherence and compliance of anti-HT drugs, only 50% of patients achieved the blood pressure (BP) target.² Existing studies have shown that the complementary therapy, namely, music therapy was a promising adjunctive approach for BP lowering. Previous studies reported that music therapy had a favorable effect on BP control.^{3–5} However, the effect of music therapy on systolic BP (SBP) and diastolic BP (DBP) was inconsistent among the studies. A few systematic reviews and meta-analysis also stated a strong heterogeneity among the included studies.^{3–6} Furthermore, although there were randomized-control trials that conducted in HT patients, most trials enrolled elderly patients with relatively lower BP at baseline.⁷

From the national health survey data, rate of uncontrolled HT (BP > 140/90 mmHg) in Thailand was very high (88%) for those undergoing conventional treatment.⁸ Recently, the 2017 American College of Cardiology/American Heart Association Hypertension Guidelines recommends a lower BP target ($\leq 130/80$ mmHg) for primary and secondary prevention of cardiovascular events in adults.⁹ According to

the new BP target, the rate of uncontrolled HT is rising despite the available pharmacological therapy. Therefore, non-pharmacological intervention as the adjunctive therapy is necessary.

Thai instrumental folk music is unique and easy to familiarize. The melody is pleasant to the ear, outstanding with its rhythmic tinkling sound and representing a valuable cultural heritage. Therefore, it could be a good adjunctive treatment for hypertensive patients. The purpose of the current study was to conduct a well-controlled randomized trial to compare the effect of Thai instrumental folk music listening to an active control group on home BP and office BP in the individuals with stage-2 HT (BP > 140/90 mmHg).

2. Materials and methods

2.1. Study design and settings

This study was a parallel group, randomized controlled trial conducted at Srinagarind Hospital, a tertiary-care university hospital, located in Khon Kaen province in the Northeastern region of Thailand during 1st November 2015 to 31st May 2016. The ethical committee of Khon Kaen University approved the study protocol. The informed

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