

Adjunct Application of Mindfulness-Based Stress Reduction in Hypertensive Patients

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Abstract

Most hypertension medications have side effects, some tolerable and some undesirable. Thus, in the treatment of hypertension (HTN), a reduction in the use of drugs with adverse effects is desirable for diminishing symptoms and reducing risks in hypertensive patients. Introduced in the late 1970s, mindfulness-based stress reduction (MBSR) utilizes nonsectarian practices, including body awareness, seated or walking meditation, yoga and prayer. The adjunct use of one or more of these methods has proved helpful for specific patients in monitoring stressors and triggers in HTN and in some cases, reducing the patient's dependency on medicines with adverse effects. Although currently, there is no medically-established protocol for MBSR or mindfulness-based intervention (MBI) in the adjunct treatment of HTN, the application of MBI for specific patients is promising. Considering the adverse effects of drugs typically used to treat HTN, MBSR should be researched further for its adjunct application in treating hypertension.

Keywords: *Adjunct Therapy; Adverse Effects; Hypertension; Meditation; Mindfulness; Prayer; Yoga*

Abbreviations

AHA: American Heart Association; CVD: Cardiovascular Disease; DBP: Diastolic Blood Pressure; HARMONY: Hypertension Analysis of Stress Reduction Using Mindfulness Meditation and Yoga; HIPP: Hypertension Intervention Pooling Project; HTN: Hypertension; MBI: Mindfulness-Based Intervention; MBSR: Mindful-Based Stress Reduction; MCBT: Mindfulness-Based Cognitive Behavioral Therapy; RCT: Randomized Controlled Trial; SBP: Systolic Blood Pressure

Preface

According to Hafid and Kerna (2019), in their published review on MBSR in chronic pain: In the management of [specific] disorders, there is a need to reduce dependency on drugs with adverse effects, and to discover and apply adjunct therapies and methods for more effective outcomes with medical treatment. Introduced in the late 1970s, mindfulness-based stress reduction (MBSR)—or mindfulness-based intervention (MBI)—utilizes nonsectarian practices, including body awareness, seated or walking meditation, yoga, and prayer. The adjunct use of one or more of these methods has proved helpful for specific patients in identifying and controlling stressors

and triggers to their conditions, and in some cases, reducing their dependency on medicines with adverse effects and resulting in more effective outcomes to their treatment [1].

Introduction

Mindfulness-based stress reduction (MBSR) or mindfulness-based intervention (MBI) is composed of methods based on historical beliefs, traditions, and practices, including but not limited to Buddhism, Shambhala, Vipassana, and Zen ideologies. A prominent figure in the Western adaptation of Eastern philosophies, beliefs, and practices in MBSR and MBI, Jon Kabat-Zinn describes “mindfulness” as the capacity to maintain mental openness regarding tolerance and a nonjudgmental focus in the present moment [2].

Other scholars have characterized “mindfulness” as a blend of awareness and focus on fostering self-consciousness or self-awareness and emotional “control” (paradoxically by dismissing the control of a state of being). MBSR and MBI emphasize neutral, nonjudgmental attitudes and perceptions. In a pathological sense, harmful perceptions or states of being may promulgate and sustain a negative-feedback cycle, reinforcing an adverse state of mind or condition, such as hypertension (HTN) [2].

The theoretical rationale for the application of MBSR (or MBI) is based on attention-discipline or attention-control via various methods, such as body awareness, meditation, yoga, and or prayer. MBSR can be practiced in an organized or casual setting, including instructor-led discussion, attention-centered technique, seated meditation, and yoga [1,2]. Individuals who participate in MBSR find an enhanced ability to cope with stressful situations, especially in terms of responding with adaptive strategies [1,2], particularly in hypertensive states.

In the western world, MBSR was developed and promulgated in the late 1970s by Jon Kabat-Zinn at the University of Massachusetts Medical Center [4,5]. The origins of MBSR include specific cultural practices and religious beliefs. However, MBSR does not adhere to or demand specific cultural practices or religious beliefs from its users or healthcare practitioners who recommend or prescribe them.

Western medicine is gradually uncovering a scientific basis for the application of MBSR as adjunctive therapy for specific conditions, which may prove useful in treating HTN. Applying MBSR as adjunctive therapy in HTN patients may have the advantage of not only ameliorating or eliminating the pain experienced by the patient but also in reducing or eliminating dependence on pharmaceutical agents that have adverse effects [1].

Mindfulness is a form of mental conditioning or preparation to improve an individual’s core psychological capabilities and regulate emotions (and thus physiology). A contemporary description of “mindfulness” underscores sound and stable consciousness and focus regarding the present moment, along with nonjudgmental attention towards thoughts and feelings.

According to a National Health Interview Survey, less than 10% of the US population practices mindfulness [3]. MBSR is known to lessen stress and anxiety and benefit specific health conditions, particularly those which are detrimental to blood vessel health [4]. MBSR increases concentration, insight, and awareness of the present moment, promotes relaxation, reduces stress, calms the mind, and helps achieve a state of enhanced consciousness; thereby, diminishing perceived suffering and increasing happiness [3]. In many of these regards, MBSR may help some patients manage hypertension (HTN), reduce dependency on medications, and improve physical health and outlook on life.

Discussion

Etiology of hypertension (HTN)

HTN is a condition categorized by elevated blood pressure compared to normal systolic blood pressure (SBP) or diastolic blood pressure (DBP). The severity of elevation is categorized into four stages. About 60 million adults in the US are known to be in stage 1 hypertension, also termed prehypertension with SBP/DBP of 120/80 to 139/89. Stage 2 is defined by persistent SBP/DBP of 140/90 mmHg to 159/99 mmHg. Moderate hypertension—also called stage 3 hypertension—involves blood pressure levels of 160/100 mmHg to 179/109

mmHg; stage 4 hypertension is SBP/DBP of 180/110 mmHg or higher, typically requiring inpatient management [5]. The cause of HTN can be physical, as seen in obesity, hyperlipidemia, and metabolic disorders; however, other causes can include stress or stress-related triggers, which may be controlled by MBSR.

Pros and cons of HTN treatment

Treatment options for stage 1 hypertension include lifestyle adjustments, weight reduction, DASH diet, and education. Uncertainty exists if antihypertensive drug use in a prehypertensive state is beneficial long-term [5]. If conservative treatment without medication fails to control blood pressure, antihypertensive drugs are typically added to control HTN.

The American Heart Association (AHA) has stated—based on scientific data—that meditation has benefits in treating cardiovascular disease [3]. Numerous measures have been put in place to address HTN, such as public health education as well as advancement in blood pressure medications. However, HTN rates remain high, especially among African-Americans, in whom the prevalence of HTN is estimated to be approximately 60% of that population [6].

Application of MBSR in HTN

While there has been limited research regarding MBSR application in HTN, a few controlled trials have demonstrated decreased systemic blood pressure (with the use of MBSR) [5]. In terms of preventing and controlling HTN, MBSR can provide a cost-effective strategy to reduce the consequences and progression of HTN [4]. The Hypertension Analysis of Stress Reduction Using Mindfulness Meditation and Yoga (HARMONY) Study consisted of a randomized controlled pilot trial investigating the use of MBSR for unmedicated stage 1 hypertension. This study may help bring awareness and validity of the application of MBSR in HTN, and in determining a protocol for its clinical application [4].

The Hypertension Intervention Pooling Project (HIPPP) collated data from twelve randomized controlled trials (RCTs), investigating the relationship between MBSR and blood pressure changes. HIPPP revealed a statistically-significant reduction in DBP; however, no effect was noted for SBP [3]. A reduction in SBP by only three mmHg can diminish stroke mortality by 8% and coronary artery disease by 5% [4].

MBSR, MBI, and mindfulness-based cognitive behavioral therapy (MCBT) are multi-component therapies capable of diminishing the effect of numerous stressors and thus optimize therapeutic efficacy [6]. Given the pharmacological advances in treating cardiovascular disease, there remains more to be done to prevent and control of HTN regarding the adverse effects of specific medications. In the United States, HTN and cardiovascular disease (CVD) have high rates of morbidity and mortality, which could be reduced by the adjunct application of MBSR in hypertensive patients [5].

Limitations of MBSR in the treatment of HTN

There is much more for medical research to discover regarding the pathophysiologic, mechanistic, and cellular-level causes of hypertension. Thus, future research should consider the prompters, mechanisms, and pathways in the development of hypertension and, in particular, how MBSR or MBI can ameliorate such. In doing so, the practice of medicine in hypertension may evolve from a pharmaceutical model to a complementary model in treating HTN. However, precise and established guidelines for the application of MBSR in the treatment of HTN are required.

Conclusion

According to Hafid and Kerna (2019), in their published review of MBSR in chronic pain, mindfulness practices have been used in various forms throughout human history to gain self-awareness and a more profound sense of connection to the human “spirit” or a creator or creative force. Western medicine is beginning to seek a scientific basis for the application of MBSR as adjunctive therapy for specific conditions [1]. MBSR methods may have an advantage in addressing specific forms of hypertension, and in doing so, help patients avoid or reduce their dependency on drugs to treat their condition, many of which have significant adverse effects. Currently, there is no standard

medical protocol or guidelines in applying mindfulness-based stress reduction or mindfulness-based intervention as adjunct therapy for hypertension. This lack of medical protocol makes MBSR application uncertain and challenging, which will likely result in its reluctant use by patients or prescription by healthcare providers. However, more research is suggesting that for specific hypertension patients, mindfulness-based stress reduction may prove helpful in managing hypertension.

Conflict of Interest Statement

The authors declare that this paper was written in the absence of any commercial or financial relationship that could be construed as a potential conflict of interest.

Supplementary Note

Healthcare providers interested in integrating MBSR methods into their practices should consider the following resources:

- Mindfulness-Based Stress Reduction, Professional Training-Mindfulness-Based Stress Reduction, Curriculum Guide and Supporting Materials, Integrating Mindfulness Meditation into Health Care (<https://www.umassmed.edu/globalassets/center-for-mindfulness/documents/mbsr-curriculum-guide-2017.pdf>).
- Palouse Mindfulness, Mindfulness-Based Stress Reduction (<https://palousemindfulness.com>).

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