An analysis of salt intake reduction vs weight loss as methods of lowering blood pressure

HNFE 3034 Methods of Human Health Assessment
Writing Summary #1
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Hypertension is a risk factor for several chronic conditions including cardiovascular disease, and kidney disease. This risk factor is estimated to cause 49% of all coronary heart disease and 62% of stroke events. Increased blood pressure and hypertension currently affect almost half of adults around the world. Medications and lifestyle modifications are frequently used to treat high blood pressure. The treatment of hypertension using pharmaceuticals is very expensive, accumulating to $10 billion per year. Therefore, it is important to look at effective treatments that can be used in combination with or replace the use of blood pressure medications. Reduced dietary intake of sodium and weight loss are both non-pharmacological treatments that can be implemented.

I will be examining why reducing dietary intake of sodium is a more effective way to reduce systolic and diastolic blood pressure.

Sodium is an electrolyte in the body that is used to regulate blood volume. Too much sodium intake can cause high blood pressure. So it is intuitive to think that reducing sodium in one’s diet will in turn reduce blood pressure. The recommended amount of sodium according the dietary guidelines for American’s is 2300 mg per day. However on average most American’s consume around 3400 mg of sodium per day. In a randomized feeding study that compared the DASH diet to sole dietary control of sodium, it was observed that reduction of sodium alone achieved reduction in blood pressure. Of the 412 participants that participated in this study, 51% achieved their BP goal by just reducing their sodium intake to the current recommendations, and 74% of participants achieved an even lower blood pressure by a more dramatic reduction in sodium. In a systematic review and meta-analysis of sodium intake on health, reduction in sodium intake also resulted in decreased blood pressure. This meta-analysis drew this conclusion from 36 randomized controlled trials all of which showed a reduction in systolic and diastolic BP levels. The quality of data from these studies was considered high. According to a statement put out by the American Heart Association (AHA), a reduction of sodium to about 1.8 g/day lowered systolic BP by 2.0 mm Hg and diastolic BP by 1.0 mm Hg. The American Heart Association supports a reduction in salt intake as an effective means of lowering blood pressure.

According to the AHA, weight loss is also considered an effective strategy to lower blood pressure. Being overweight increases the risk of hypertension along with many other conditions such as T2DM and stroke. A general increase in BMI for obese and non-obese men and women has been shown to increase the likelihood of hypertension. In a 12 month trial that was performed on overweight patients, a systolic decrease of 4.2 mmHg and diastolic decrease of 3.3 mmHg were a result of a 10% reduction in BMI. This study analyzed a short time period in which a decrease in blood pressure was observed. A randomized weight loss maintenance trial studied the effects of blood pressure over a long term 5 year period. It was found that participants who kept their weight stable during this time actually experienced an increase in systolic blood pressure. This effect was avoided if the individuals lost an additional 3% of their body weight. Sustaining a physical activity regimen is important for maintaining the weight that is lost. A BMI of <25 is the most optimal in order to prevent and treat hypertension.

When looking at the systolic and diastolic numbers that are achieved when reducing sodium intake or losing weight, it appears that weight loss yields a greater decrease in blood pressure. According to a scientific statement by the AHA, a meta-analysis that collected results from 25 trials reflected an average reduction of 4.4 mm Hg (systolic) and 3.6 mm Hg (diastolic) for every 5.1 kg of body weight that was lost. This decrease in blood pressure was almost double compared to salt intake reduction that was observed in over 50 randomized trials. Despite this evidence, I believe that reducing salt intake is a more effective means in reducing blood pressure when considering realistic expectations for patients with hypertension. Both weight loss and dietary sodium reduction are considered effective techniques according to the American Heart Association but weight loss is a hard behavior change for individuals to achieve and maintain. In the Fogari et al. study that examined weight loss effects on blood pressure, it was stated that 139 of the 395 original participants in the study were disqualified because they did not meet the weight loss expectations. The researchers acknowledged that this proved how weight loss was hard to attain and maintain. It also appears that weight gained back by individuals from weight that is originally lost may result in an even higher blood pressure than was originally present in the individual. The Diaz, et al. randomized control trial found that participants who had lost weight in the beginning and then put the weight back on experienced significantly higher blood pressure in subsequent follow-ups.
There have been more studies that have been performed on reduction in salt intake, and more reviews that further confirms the evidence that dietary sodium reduction results in decreased blood pressure. That evidence in addition to weight loss maintenance difficulties makes salt intake reduction the most effective means of lowering blood pressure.

Bibliography
