

# Emergence of New Risk Factors for causing Hypertension

Varshil Mehta<sup>1,2,\*</sup>

## ABSTRACT

The major risk factors which we have been hearing since decades for causing hypertension are high salt diet, obesity, hyperlipidaemia, age, race, consuming tobacco, sedentary lifestyle, stress, drinking too much alcohol etc. However, there are many studies which shows that sugar, fats and low vitamin d levels are equally responsible for causing hypertension. The article will put forward some interesting points to show that sugars, fats and vitamin d levels equally play an important role in causing hypertension.

**KEYWORDS:** Risk Factors, Vitamin D, Salt, Sugar, Fats.

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## INTRODUCTION

Hypertension (HTN) or increase in blood pressure has been considered as one of the leading factor in causing worldwide disability-adjusted life years [1]. There are many etiological factors involved behind HTN and it occurs due to a combination of both genetic and environment factors [2]. According to one study conducted by Kearney et al., more than 1 billion adults worldwide (approximately 25%) has hypertension. Other estimates suggest this number will climb to 29% by 2025 [3].

The major risk factors which we have been hearing since decades for causing hypertension are high salt diet, obesity, hyperlipidaemia, age, race, consuming tobacco, sedentary lifestyle, stress, drinking too much alcohol etc.[4]. However, there are far too more factors which should also be held responsible for causing hypertension. This article will put forward the new risk factors which are equally responsible for causing hypertension.

## ASSOCIATION OF SUGAR & HYPERTENSION

In one of his recent article, Dr. James DiNicolantonio and his colleagues suggested that the main culprit behind hypertension is sugar and not salt. They have showed that sugar has a potential of causing fluid and sodium overload [5]. According to a meta-analysis of Randomised Control Trials (RCT), it was observed that that a diet with high sugar quantity as compared with a low-sugar diet, could cause an increase in blood pressure [6]

Moreover, sugar can lead to leptin resistance, which may also contribute to its BP raising effects [7]. Dietary sugar may also increase aldosterone by activation of the sympathetic nervous system, which stimulates angiotensin-II and aldosterone production from adrenal glands [8]. This growing body of data suggests that an overconsumption of refined sugars can lead to salt-sensitive HTN.

## ASSOCIATION OF FATS & HYPERTENSION

Dietary fat is known to cause weight gain and subsequently, overconsumption through its high caloric density and low satiety properties which can lead to obesity and other metabolic disorders [9]. Obesity is a known risk factor for causing HTN.

In a recent study, conducted by Dixon W. Wilde et al, it was observed that there was an increase in plasma fatty acids levels which may lead to hypertension via a process involving the elevation of Ca<sup>2+</sup> current density and by a change of channel kinetics in the vascular smooth muscle membrane [10]. In another study conducted by Dr. Clint Gray et al, concluded that when rats were given a diet of high fat (HF) and high salt (HS) while being bearing foetuses, their offspring's when born, had blood pressure pretty much higher than those whose mothers were fed with HS diets [11].

Hence, even fats should be considered as one of the new emerging risk factors for causing hypertension.

## ASSOCIATION OF LOW VITAMIN D LEVELS & HYPERTENSION

Vitamin D plays an important role in the maintenance of blood pressure and other cardiovascular functions [12]. Koota et al., showed systolic blood pressure, diastolic blood pressure and arterial average pressure had increased among people suffering from lack of vitamin D and suggested that Vitamin D deficiency is accompanied by Renin Angiotensin Aldosterone System activity (RAAS) [13].

One similar study showed that people with higher levels of vitamin D had lower blood pressures and a lower risk of developing hypertension [14]. A review in 2013 looked at many studies involving people with hypertension. They found that for each 10 ng/ml increase in someone's vitamin D levels, they had a 12% lower risk of developing hypertension. The people with the highest vitamin D levels had a 30% lower risk of developing hypertension compared to the people with the lowest levels [15].

Hence, low levels of vitamin d could also be an emerging risk factor for HTN.

## CONCLUSION

The article puts forward some interesting points to show that sugars, fats and vitamin d levels equally play an important role in causing hypertension. Physicians should be careful and should inform their hypertensive patients about the ill-effects of having meals with high sugars, fats and low vitamin d levels.

**Conflict of Interest:** None declared

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### AUTHOR'S DETAILS

**Affiliation:** <sup>1</sup>MGM Medical College, Navi Mumbai, India.

<sup>2</sup>Mount Sinai Hospital, New York, USA.

**\*Corresponding Email I'd:** varshil91@gmail.com

**Address:** 103, Sky High Tower, Orlem, Tank Road, Malad West, Mumbai, India.



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