Target Blood Pressure in Clinical Settings
Sudha Vidyasagar

Hypertension (HTN) is a common risk factor for atherosclerosis in all vascular systems and has consequences on the heart, brain, kidney, and peripheral vessels. It is also well known that control of HTN makes a huge impact on prevention of vascular events which cause significant morbidity and mortality.

Over the years, the definition of HTN has changed based on data generated by large clinical trials.\(^1\) The level at which to begin treatment has been based on the level at which complications tend to occur. There have been controversies in this area with these thresholds being changed time to time, with every joint national committee (JNC) report, from JNC 6 to JNC 8.

The bigger question has been to identify the target blood pressure (BP) to be achieved by therapy, to prevent complications. There have been differences of opinion between cardiologists who are looking at BP target in cardiac failure and ischemic heart disease and the neurologists who deal with hemorrhagic and ischemic stroke.\(^2\) Further, there is the question of targets for systolic and diastolic BP, as circulations such as coronary are dependent on diastolic BP, whereas the cerebral blood flow varies according to systolic pressure. The “J”-shaped curved in HTN translates into higher mortality at both very high and very low BP, as lower diastolic pressures compromise the coronary flow.\(^3\) Heart failure in hypertension, which can be with reduced or preserves ejection fraction, demands an approach which takes into account the type of heart failure, as the targets for these groups are likely to be different.\(^4\)

Diabetics for a significant proportion of hypertensives and this combination of comorbidities are double trouble for all vascular complications, especially causing faster progression of diabetic kidney disease.\(^5\) The cardiovascular impact is also significant, and hence, the American Diabetic Association and the American Heart Association have both asked for stringent control of BP in this subgroup. However, the systolic BP intervention trial (SPRINT) did not address this subgroup at all, and hence, there is lack of clarity in targets in diabetics.\(^6\)

Chronic kidney disease is yet another group of patients, whose renal function which depends on their glomerular filtration, which varies according to their BP. They may also have diabetes or maybe elderly, overlapping with the other important subgroups. The target BP must take into account the best glomerular filtration rate (GFR) to protect renal function, yet prevent progression of diabetic nephropathy.\(^7\)

The elderly form an entirely different population, with their tendency to have orthostatic hypotension, with and without treatment of HTN, which may result in giddiness and falls, when the sitting BP, and not the standing BP is used as target. In addition, their lower diastolic pressures causing coronary compromise may predispose them to coronary events, and their declining GFR may affect renal function with lowering of systolic BP.\(^8\) These have to be balanced against the clinical gains made by strict BP control, as shown in the SPRINT trial.

There is also the question of treating BP in special populations such as pregnancy. The consideration in this group is different and needs to address the morbidity in the mother and the intrauterine environment for growth for the fetus in utero.\(^9\) In the pediatric age group, the causes of HTN are mostly secondary, and these must be addressed. However, in those without correctable causes and long-term gains of treating BP in children must be weighed against their side effects.\(^10\)

Hence, this series of articles is written by practicing clinicians dealing with all the subgroups mentioned above. Each is a perspective from that specialists point of view. All of them address the same question of what is the ideal target BP in their patient, and take a call on that, putting together the current evidence.

Address for correspondence:
Sudha Vidyasagar, Department of Medicine, Kasturba Medical College, Manipal Academy of Higher Education, Manipal, Karnataka, India. E-mail: sudha.vs@manipal.edu

Received: 21-12-2020; Accepted: 24-12-2020
doi: 10.15713/ins.johtn.0204
There are important questions raised and answered, and some still await further evidence and clarity. They are all important for the practicing clinician who deals with hypertensive patients every day in their day-to-day practice.

References


How to cite this article: Vidyasagar S. Target Blood Pressure in Clinical Settings. Hypertens 2020;6(4):2-3.

Source of support: Nil, Conflicts of interest: None