Hypertension



Hypertension Normal ABP : the pressure exerted by blood on the vessel wall of the arterial system from the beginning of the aorta to the start of the arterioles, it is about 120 mmHg systolic and 80 mmHg diastolic. Arterial blood pressure (ABP) = cardiac output (CO) X total peripheral resistance Hypertension : sustained elevation of the systemic ABP > 139 mmHg systolic & > 89 mmHg diastolic. Therefore : so long as CO is constant is relatively constant ; a change in the ABP is mainly due to a change in the peripheral resistance. Grades of hypertension | Category | Systolic | Diastolic | | Optimal |< 120 |< 80 || Normal |< 130 |< 85 || High-normal | 130 - 139 | 85 - 89 |</pre> | Hypertension grade 1 (mild) | 140 - 159 | 90 - 99 | | Hypertension grade 2 (moderate) | 160 - 179 | 100 - 109 | | Hypertension grade 3 (severe) |> 180 |> 110 | | Isolated systolic hypertension |> 140 |< 90 | Types of hypertension 1- Primary (Essential) hypertension (about 95 %) : unknown cause Heredity : interaction of genetic, environmental and demographic factors Excess sodium intake : about 20% of patients develop hypertension : salt sensitive hypertensives. Sedentary lifestyle is responsible for the exploding increase of HTN in economically developing regions ' Westernization' e. g obesity, and alcohol intake. Cigarette smoking Increased sympathetic activity : is thought by some scientist to a be cause ; but this finding was not proved. 2- Secondary hypertension (about 5 %) : due to a-Renal causes c- Drug-induced HTN : Yatrogenic 1. Chronic renal disease 1. Non- steroidal anti- inflammatory drugs 2. Renal artery stenosis 2. Contraceptive pills 3. Glucocorticoids b- Endocrinal causes d- Coarctation of aorta 1. 1ry hyperaldosteronism 2. Cushing's syndrome 3. Pheochromocytoma Pathophysiology of primary hypertension : in most people there is increased resistance to blood flow (total peripheral

Hypertension – Paper Example

resistance) accounting for the high pressure while cardiac output remains normal. Increased peripheral resistance in established hypertension is due to : 1. Structural narrowing of small arteries and arterioles (increased active vasoconstriction may play a role in essential hypertension). a- Rise of plasma sodium leads to activation of Na+/Ca2+ exchanger which in turn leads to increased cytoplasmic Ca2+ of the vascular smooth muscles and its resting tonic contraction. AND/OR b-Endothelial dysfunction . c-Vascular inflammation (sub-endothelial deposition of lipids). 2. A reduction in the number and/or density of capillaries. 3. Stiffness of large conduit vessels (aorta & arteries); is responsible for "isolated systolic hypertension" and increased pulse pressure in elderly persons. A decrease in venous compliance, increases the venous return, which in its turn increases the cardiac preload and, ultimately, causes diastolic dysfunction. Suspect hypertension in the future : There is evidence that some younger people with pre-hypertension 'hyperkinetic borderline hypertension' develop the typical features of established essential hypertension in later life as their cardiac output falls and peripheral resistance rises with age. Hyperkinetic borderline hypertension is characterized by : 1. High cardiac output. 2. Elevated heart rate. 3. Normal peripheral resistance. Physiologically based TTT of Essential HTN 1. Diet control : DASH diet : Diet Approaches to Stop Hypertension : is intended to decrease calories (fats, oils, carbohydrates) intake and salts, as well as to raise the ratio of consumed K/Na to 3/1. This diet system duration is about 11 weeks and is equivalent to one drug regimen. 2. Exercise : it increases the compliance of the arterial and venous systems. It also opens new capillaries . 3. Diuretics. 4. Plasma lipids lowering drugs. * * * * * [pic] ----- preHypertension

https://assignbuster.com/hypertension/