



62 year old Mr. Kumar got admitted to the hospital with:

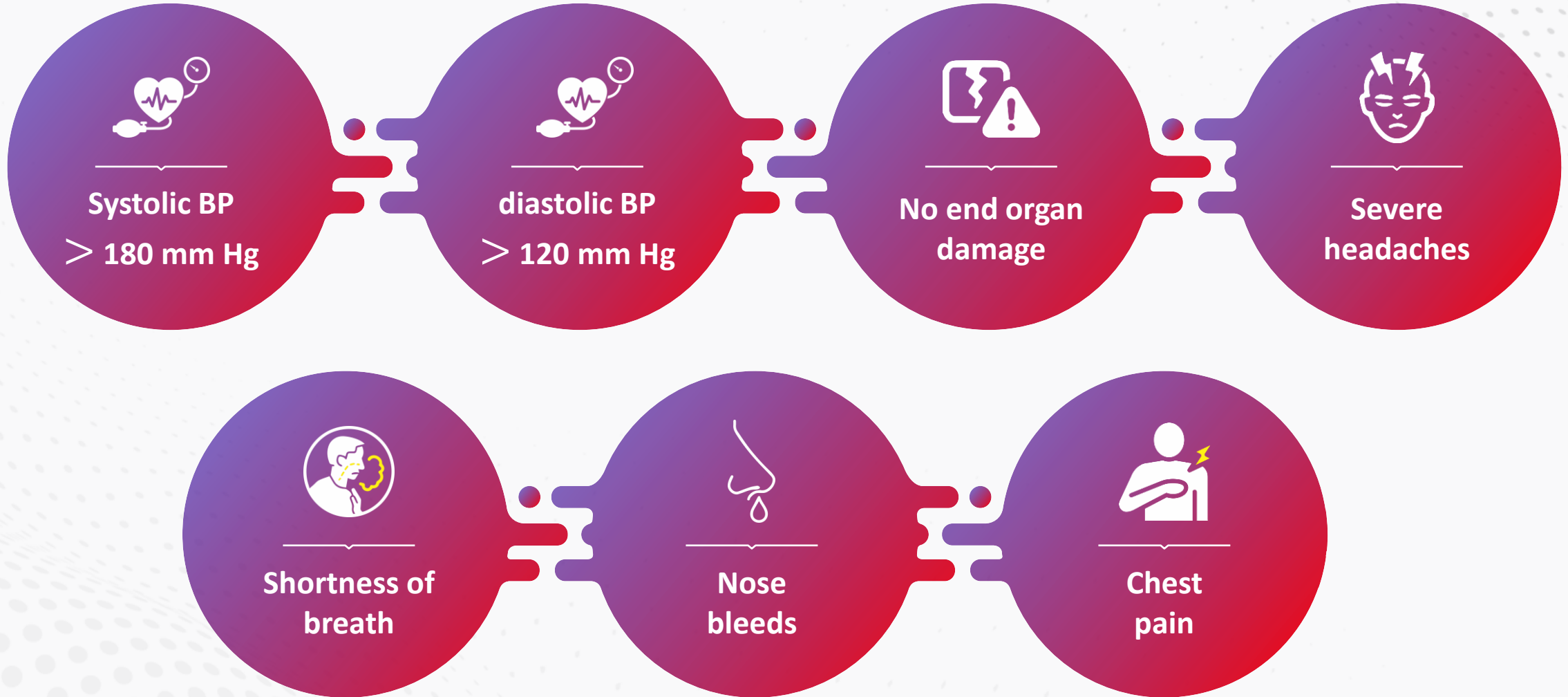
- ▶ High home blood pressure – 195/95 mm Hg
- ▶ Ambulatory 24 hour mean BP – 175/90 mm Hg

Mr. Kumar's clinical history showed:

- Hypertension from past 20 years
- Obesity
- No significant cardiac family history
- Obstructive sleep apnoea
- Uncontrolled systolic BP: 160-170 mm Hg despite taking **maximum tolerated doses** of anti-hypertensive medications:
 1. **Amlodipine**
 2. **Nebivolol**
 3. **Hydrochlorothiazide**

What should be the most appropriate therapeutic strategy to manage uncontrolled hypertension of Mr. Kumar?

Major Signs and Symptoms



Resolving Mr. Kumar's case



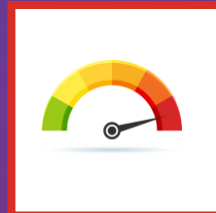
Advised to take **spironolactone 100 mg daily**

1



Strict lifestyle modifications including **low sodium diet and exercise**

2



Referred to **hypertension specialist** for continued close follow up

3

Interventional management – Renal Denervation

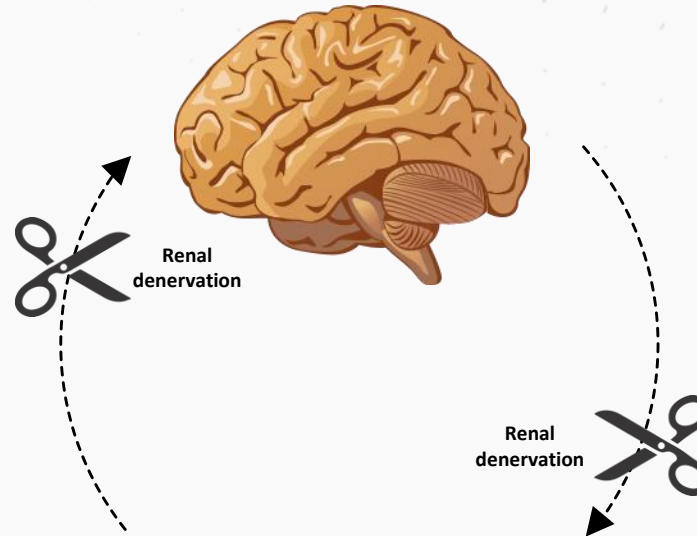


Increased afferent signalling from the kidney to central integrative brain structures

Contributing factors

- Adenosine
- Acidosis
- Oxidative stress
- Inflammation
- Endothelial factors
- Angiotensin II
- Ischaemia

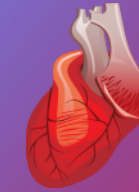
Kidney norepinephrine spill over



Renal injury/renal ischaemia

Sodium and water retention,
Reduced renal blood flow,
Activation of the RAAS,
Proteinuria, Glomerulosclerosis

Increased efferent sympathetic outflow to the kidney and other organs



- Remodelling
- Hypertrophy
- Arrhythmias
- Ischaemia
- Apoptosis

- Medial hyperplasia
- Decreased arterial compliance
- Endothelial dysfunction



Whole body norepinephrine spillover

Renal denervation (RDN) is a minimally invasive procedure to treat resistant hypertension by causing a reduction in the nerve activity, which decreases blood pressure.