Case Study 4

Excellent Blood Pressure Control

Why is blood pressure control important ?

- **The impact over years of the heart working at high pressure is :**
- Thickening of the pumping muscle creates stiffness and impaired relaxation between heart beats. The elevated pressure leads to diastolic heart failure
- Fatigue and weakness of the pump such that pumping power or ejection fraction is reduced and eventual systolic heart failure
- Enlargement of the priming chambers leading to atrial fibrillation
- Pressure damage in the circulation and vascular damage to ‘end organs’ leading to heart attacks, strokes, kidney damage, ruptured aneurysms

Clinical case

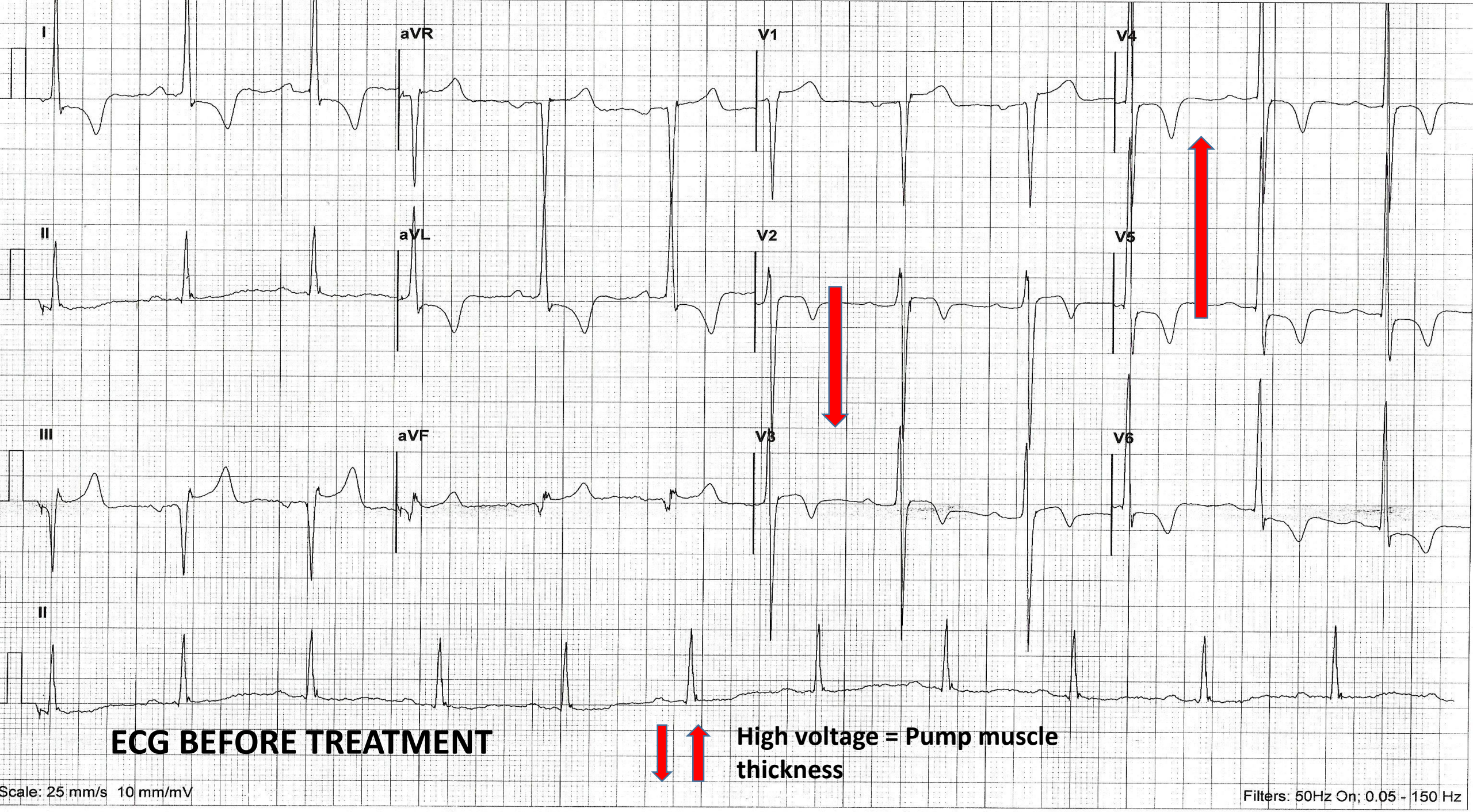
- 65 year old male with a history of borderline elevated blood pressure
- Not on any blood pressure medication
- BP high at routine GP check at 180/110 , normal being 135/80
- Admitted to hospital because high BP + grossly abnormal ECG

Management

- Clinical assessment ruled out any specific cause
- Diagnosis ‘Essential Hypertension’ – genetic tendency often with other family members affected
- Started on Losartan 50 mg daily, Amlodipine 5 mg daily and bisoprolol 2.5 mg daily
- Given three drugs or triple therapy because of high BP and impact on the heart as shown by ECG and ongoing risk to the circulation and end organs – heart / brain / kidneys

Progress

- BP progressively fell from 180/110 to 140/80 in the next 48 hours
- Patient discharged and 24 hr BP monitor in 1 month
- Blood pressure monitor average BP result 109/78 – completely normal
- Pumping chamber wall thickness reduced from 1.9 cm to 1.2 cm over 1 year
- Routine BP at follow – up 120/80



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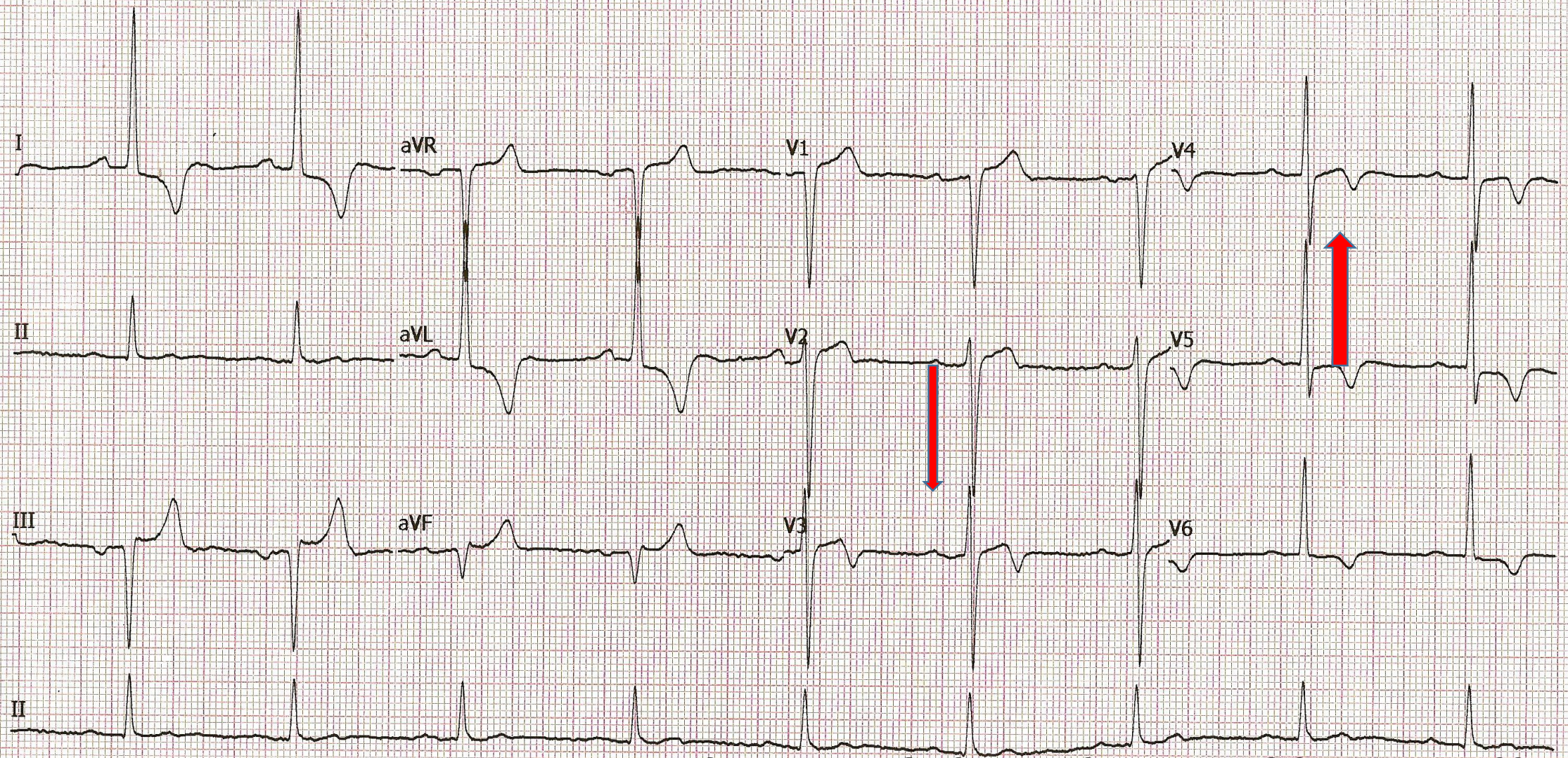


1 YEAR AFTER TREATMENT

SMALLER ARROWS = REDUCED PUMPING CHAMBER MUSCLE THICKNESS

GE MAC1600 1.0.4 12SL™ v239 25 mm/s 10 mm/mV 0.16-20 Hz 50 Hz Unconfirmed 4x2.5x3_25_R1 1/1

MANUFACTURED:

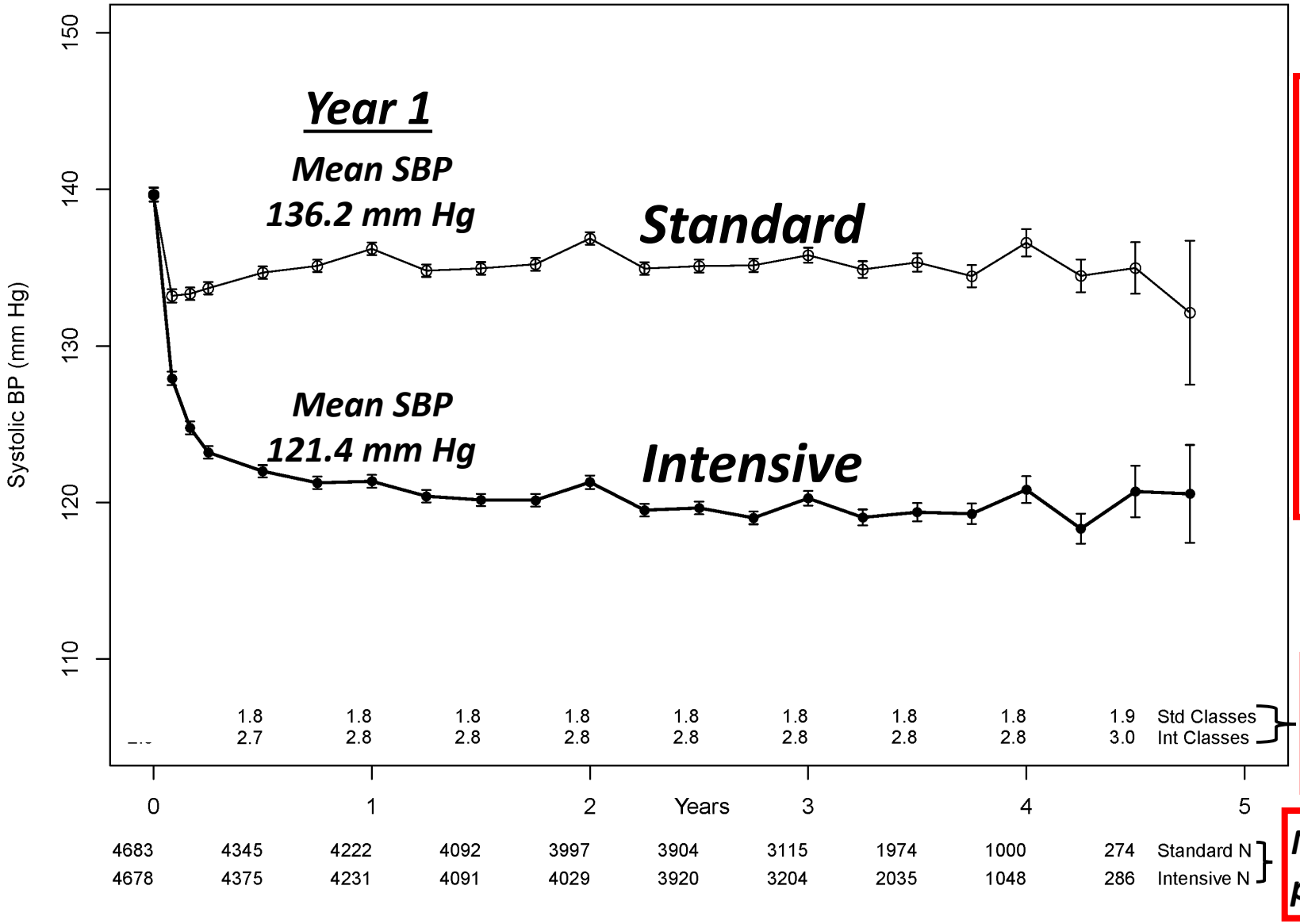
Comment

- Detection and urgent treatment has prevented potentially serious and fatal complications

- In general blood pressure is often sub-optimally treated even if patients reach current BP targets

- A recent large trial of over 9000 patients demonstrated that the difference between good BP control (average BP for the group 136 systolic) and intensive BP control (average BP for the group 121 systolic) was one new heart failure and one death prevented for every 60 and 90 patients treated - SPRINT study November 2015 NEJM

Systolic BP During Follow-up



Average SBP
(During Follow-up)

Standard: 134.6 mm Hg

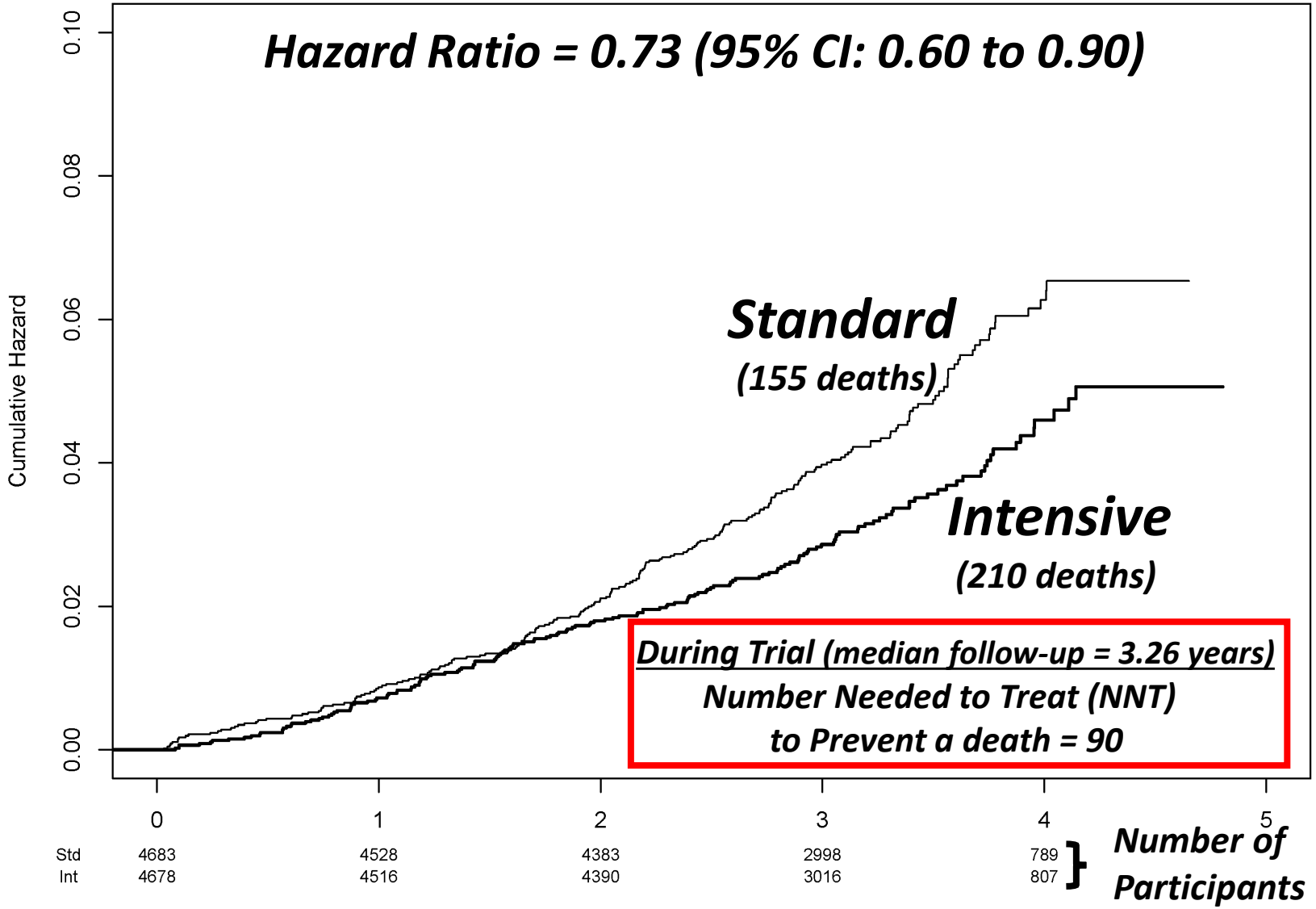
Intensive: 121.5 mm Hg

Average number of antihypertensive medications

Number of participants

SPRINT
Systolic Blood Pressure Intervention Trial

All-cause Mortality
Cumulative Hazard



SPRINT
Systolic Blood Pressure Intervention Trial