Clinical History:

Resistant hypertension

? any secondary cause

MRI Cardiac Myocardial Viability :

Height 171 cm Weight 69.5 kg Body Surface Area 1.82 m2

Body Mass Index 23.8

Normal weight = 18.5–24.99

BP on scanning = BP failed to record unfortunately (radiographer's commment)

Image quality: very good

Brain

stuff

Normal sized vertebral arteries:

RIGHT:3.2mm

LEFT:2.8mm

Bilateral absence of posterior communicating arteries

No intracerebral aneurysm formation.

FLAIR sequence

More stuff

T1 MPRAGE images acquired

No intracranial abnormality.

Cross section mid neck pre-common carotid bifurcation.

Right common carotid artery

Size 4.7(mm)

Max velocity 58.4(cm/sec)

Antegrade flow 4.39(ml)

Effective flow 0.24(l/min)

Split flow 35.8%

Left common carotid artery

Size 4.4 (mm)

Max velocity 63.6(cm/sec)

Antegrade flow 4.12(ml)

Effective flow 0.22(l/min)

Split flow 32.8%

Right vertebral artery

Size 2.6(mm)

Max velocity 35.1(cm/sec)

Antegrade flow 2.16(ml)

Effective flow 0.12(l/min)

Split flow 17.9%

Left vertebral artery

Size 2.5(mm)

Max velocity 26.8(cm/sec)

Antegrade flow 1.59(ml)

Effective flow 0.09(l/min)

Split flow 13.4%

Total cerebral flow = 0.67 l/min; low.

Thorax

Thorax stuff

Abdomen

Abdo stuff

This does not exclude underlying metabolic disturbance. Tiny adrenal adenomas may be missed.

No evidence of renal artery stenosis.

Good sized single renal arteries:

L = 5.1mm

R = 4.4mm

Atria

Atria stuff

In ventricular systole:

Left Atrial Area (4ch) = 18 cm2 = 10 cm2/m2

Left Atrial Area (2ch) = 17 cm2 = 9 cm2/m2

LA length (4ch) = 5.0cm

LA length (2ch) = 5.0cm

LA volume = (0.85) x 18 x 17/5 (shortest L (cm)) = 52 ml = 29 ml/m2

Reference Ranges for LA Volume Index (mL/m2) (adapted by SE.Petersen et al JCMR 2017)

LAVI (Biplane) (mL/m2) for Caucasian men

Normal zone 19 - 55

Right Atrial Area = 14 cm2 = 8 cm2/m2

Atrioventricular valves

Valves stuff

Ventricles

Ventricles stuff

No LV hypertrophy.

Basal anterior interventricular septum = 10mm

Basal inferolateral LV wall = 9mm

LV end-diastolic diameter = 40mm

LV end-systolic diameter = 24mm

MAPSE = 14 mm

TAPSE = 18 mm

Ventricular functional analysis is as follows (indexed values in brackets per m2); with Normal ranges (Male ≥35 years) - J Cardiovascular Magnetic Resonance. 2005;7(5):775-82.

LV

Ejection Fraction (%) 67;59-83

End Diastolic Volume ml(ml/m2) 105 (58;53-97)

End Systolic Volume ml(ml/m2) 35 (19;10-34)

Stroke Volume (ml) 70(68-144)

Cardiac Output 4.2 (l/min)

Cardiac Index 2.3 (l/min/m2)

Mass g(g/m2) 85 (47;42-78)

Research applications

Global longitudinal strain. 4c - 14%, 2c - 18%.

Global longitudinal strain rate 4c E>A. 2c E>A.

Gadolinium Delayed Enhancement

GAD things

Pulmonary Valve and Pulmonary Arteries

Pulmonary stuff

Pulmonary Veins

The pulmonary venous drainage is normal

Aortic valve and aorta

The aortic valve is trileaflet, thin, mobile and opens well.

The thoracic aorta is left-sided with a normal branching pattern.

Normal calibre

No coarctation.

Mid Ascending

Peak 85.3(cm/s)

Antegrade 72.89 (ml)

Retrograde 0.73 (ml)

Net Flow 4.35 (l/min)

Time to Peak flow A 124.4 (ms)

Area in systole 676(mm2)

Area in diastole 584 (mm2)

AP diameter in systole 32 (mm)

Mid Descending

Peak 96.75 (cm/s)

Antegrade 50.03(ml)

Retrograde 0.34 (ml)

Net Flow 3.00(l/min)

Time to Peak Flow D 149.3(ms)

Area in systole 287(mm2)

Area in diastole 250(mm2)

AP diameter in diastole 20(mm)

Distance from asc to desc arch 97(mm)

D – A 24.9(ms)

Pulse Wave Velocity 3.9(m/sec) ; normal

Aortic annulus 20 mm

Sinus of Valsalva 27mm

Sinotubular Junction 18mm

Mid Ascending 27mm

Proximal Arch 26mm

Mid Arch 20mm

Distal Arch 18mm

Proximal Descending 18mm

Mid Descending 19mm

Diaphragm Hiatus 15mm

Mid Abdominal 13mm

SUMMARY

Some summary things

Dr Test Test, Cardiology fellow

Dr Test Testing – Consultant Cardiovascular Radiologist