

Draft BTS guidelines: Cardiovascular assessment of potential kidney transplant recipient

Prof. Adnan Sharif

Consultant Nephrologist & Transplant Physician, University Hospitals Birmingham, UK

Honorary Professor, University of Birmingham, UK

Adnan.Sharif@uhb.nhs.uk; @AdnanSharif1979

Guidelines

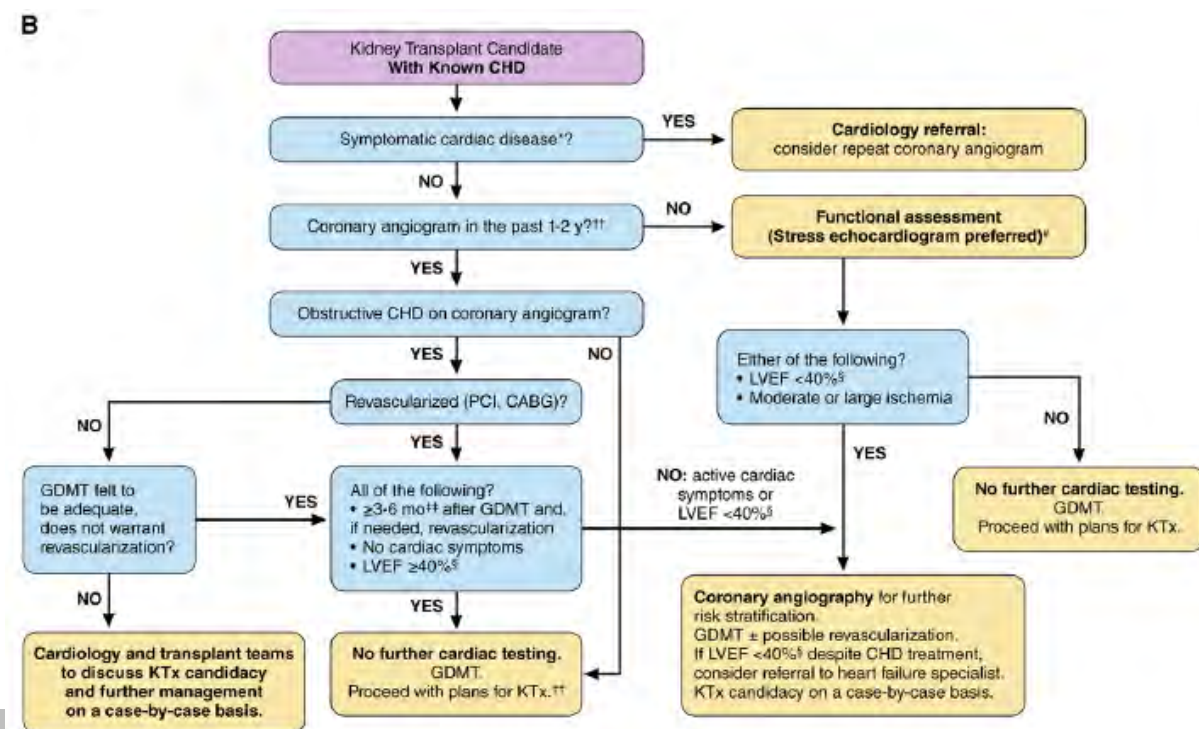
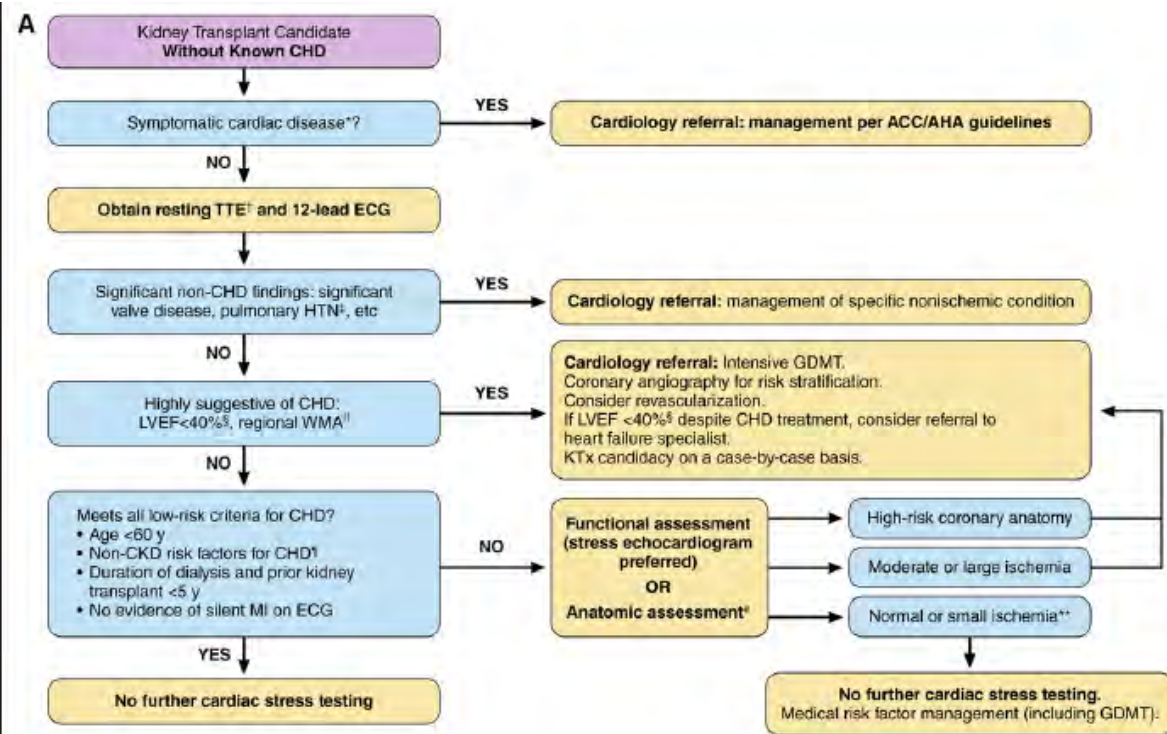
- American Society of Transplantation (AST) 2002
- American College of Cardiology/American Heart Association (ACC/AHA) 2007
- Renal Association (RA) 2011/2016
- American Heart Association/ American College of Cardiology Foundation (AHA/ACCF) 2012 (updated 2022)
- Caring for Australasians with Renal Impairment (CARI) 2013
- European Renal Best Practice (ERBP) 2015
- Kidney Disease: Improving Global Outcomes (KDIGO) 2018/2020

AHA SCIENTIFIC STATEMENT

Emerging Evidence on Coronary Heart Disease Screening in Kidney and Liver Transplantation Candidates: A Scientific Statement From the American Heart Association

Endorsed by the American Society of Transplantation

Xingxing S. Cheng, MD, MS, Chair; Lisa B. VanWagner, MD, MS; Salvatore P. Costa, MD; David A. Axelrod, MD, MBA; Sripal Bangalore, MD, MHA, FAHA; Silas P. Norman, MD; Charles A. Herzog, MD, FAHA; Krista L. Lentine, MD, PhD, Vice Chair; on behalf of the American Heart Association Council on the Kidney in Cardiovascular Disease and Council on Cardiovascular Radiology and Intervention



Questioning our rational for cardiac testing

ANALYSIS AND COMMENTARY

Screening for Coronary Artery Disease Before Renal Transplantation—Rational or Rationing?

Patrick B. Mark, Rajan K. Patel, and Alan G. Jardine

Perspective

AJKD

The Argument for Abolishing Cardiac Screening of Asymptomatic Kidney Transplant Candidates

Adnan Sharif

Screening Asymptomatic Kidney Transplant Candidates—*Primum Non Nocere*

Invited Commentary

Invited Commentary

LESS IS MORE

Screening Asymptomatic Kidney Transplant Candidates—*Primum Non Nocere*

Joshua A. Beckman, MD; Matthew D. McEvoy, MD

Debates in Nephrology

Kidney360

Routine Cardiac Stress Testing in Potential Kidney Transplant Candidates Is Only Appropriate in Symptomatic Individuals: PRO

Adnan Sharif ^{1,2}

KIDNEY360 3: 2008–2012, 2022. doi: <https://doi.org/10.34067/KID.0007592020>

Editorial

Rethinking Routine Coronary Screening in Kidney Transplant Candidates

Mallika Gupta ¹ and Xingxing S. Cheng ²

JASN 00: 1–2, 2026. doi: <https://doi.org/10.1681/ASN.0000001042>

Circulation

ON MY MIND

Why We Must Rethink Kidney Transplantation as a Cardiovascular Risk–Reducing Intervention in Kidney Failure

Adnan Sharif, MD

Mark et al. Transplantation 2010

Beckman and McEvoy 2020

Gupta and Cheng. JASN 2026

Sharif A. AKJD 2020

Sharif A. Kidney360 2022

Sharif A. Circulation 2026

We need guidelines that broaden not restrict access to kidney transplantation

Transplant care in the UK: a patient perspective

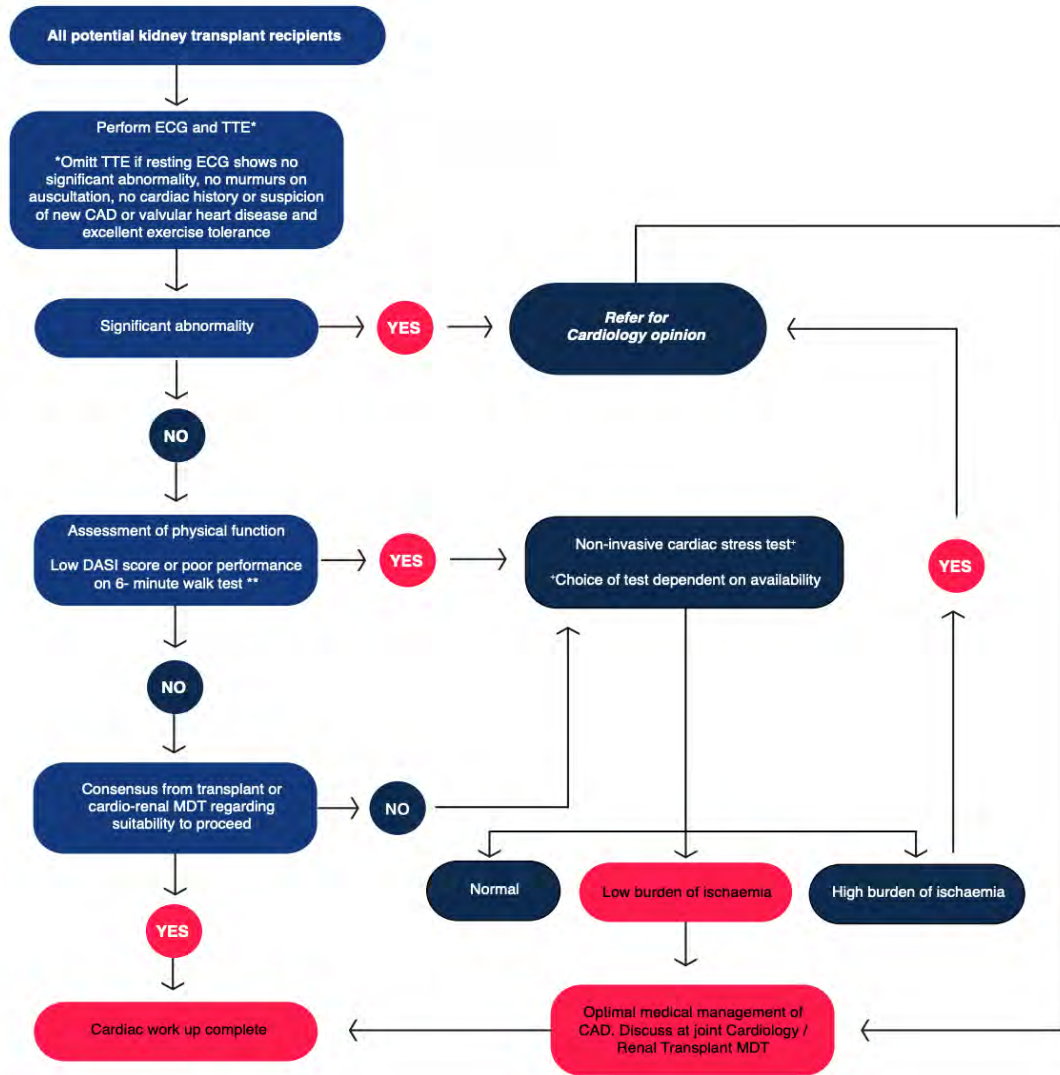
July 2024



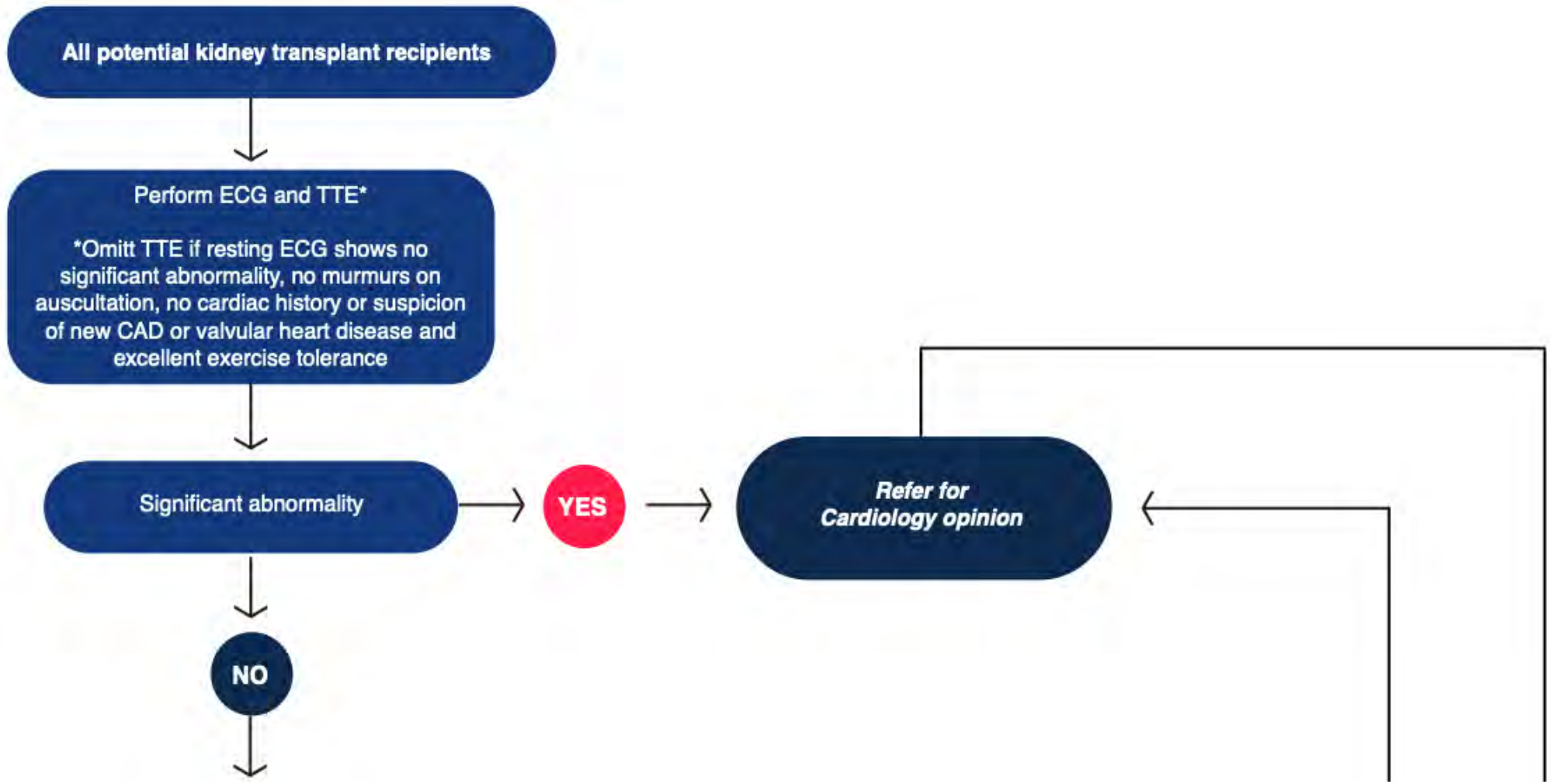
Kidney Care UK's Patient Advisory Group debated the issue of assessment for cardiac fitness and clearly expressed their desire for:

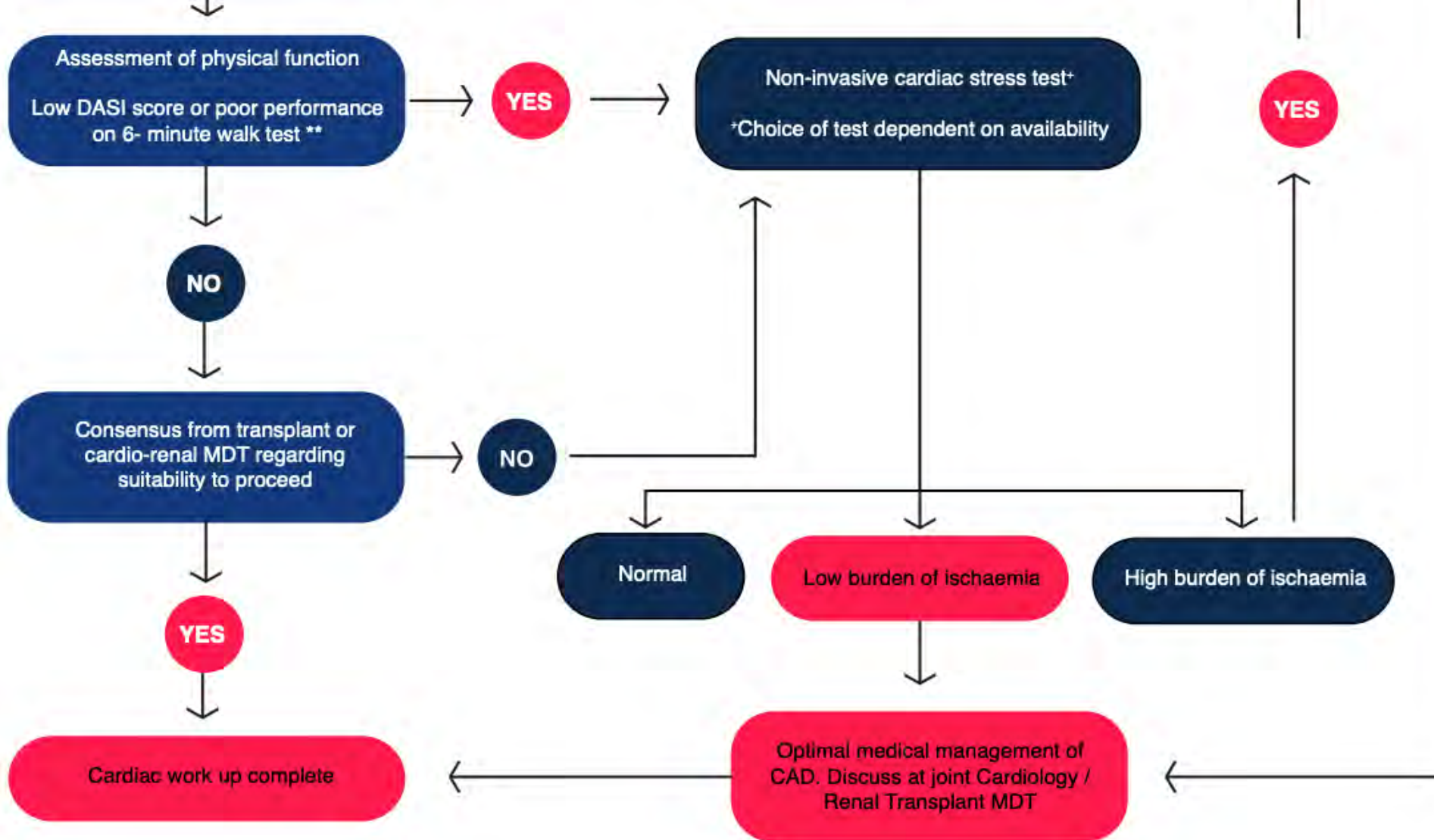
- Urgency in the development of an evidence-based consensus on testing.
- A personalised medicine approach to testing to maintain safety but avoid unnecessary assessments and delays.
- Removal of unwarranted variation in testing to ensure equity for patients across the UK

We need guidelines that broaden not restrict access to kidney transplantation



BTS guideline for cardiovascular assessment of potential kidney transplant recipients (draft version under review)





Duke Activity Scoring Index (DASI)

Take care of self
e.g. eating, dressing, bathing, using the toilet



Walk indoors



Walk 1–2 blocks on level ground



Climb a flight of stairs or walk up a hill



Run a short distance



Do light work around the house
e.g. dusting, washing dishes



Do moderate work around the house
e.g. vacuuming, sweeping floors, carrying in groceries



Do heavy work around the house
e.g. scrubbing floors, lifting or moving heavy furniture



Do yardwork
e.g. raking leaves, weeding, pushing a power mower



Have sexual relations



Participate in moderate recreational activities
e.g. golf, bowling, dancing, doubles tennis, throwing a baseball or football



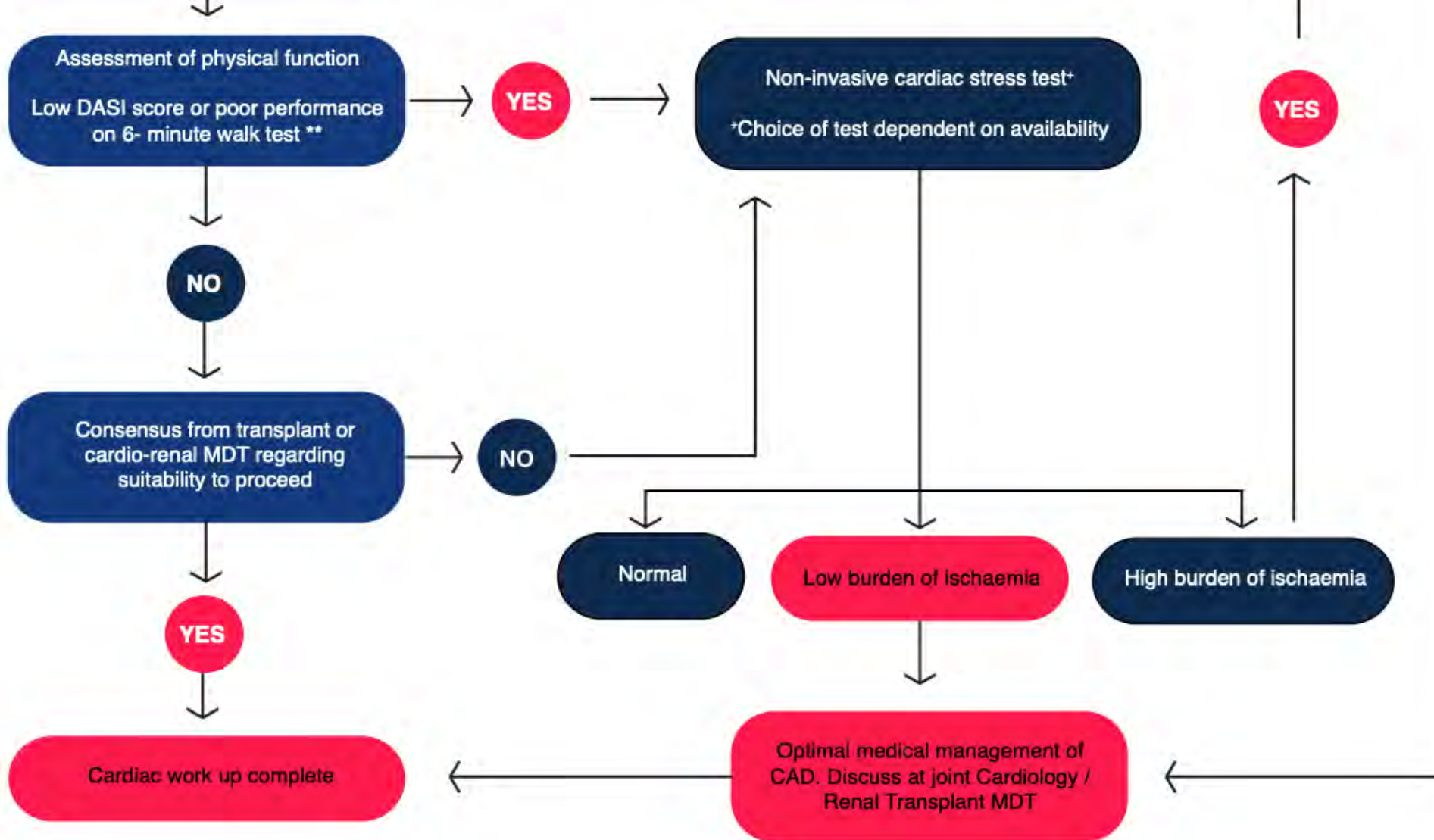
Participate in strenuous sports
e.g. swimming, singles tennis, football, basketball, skiing

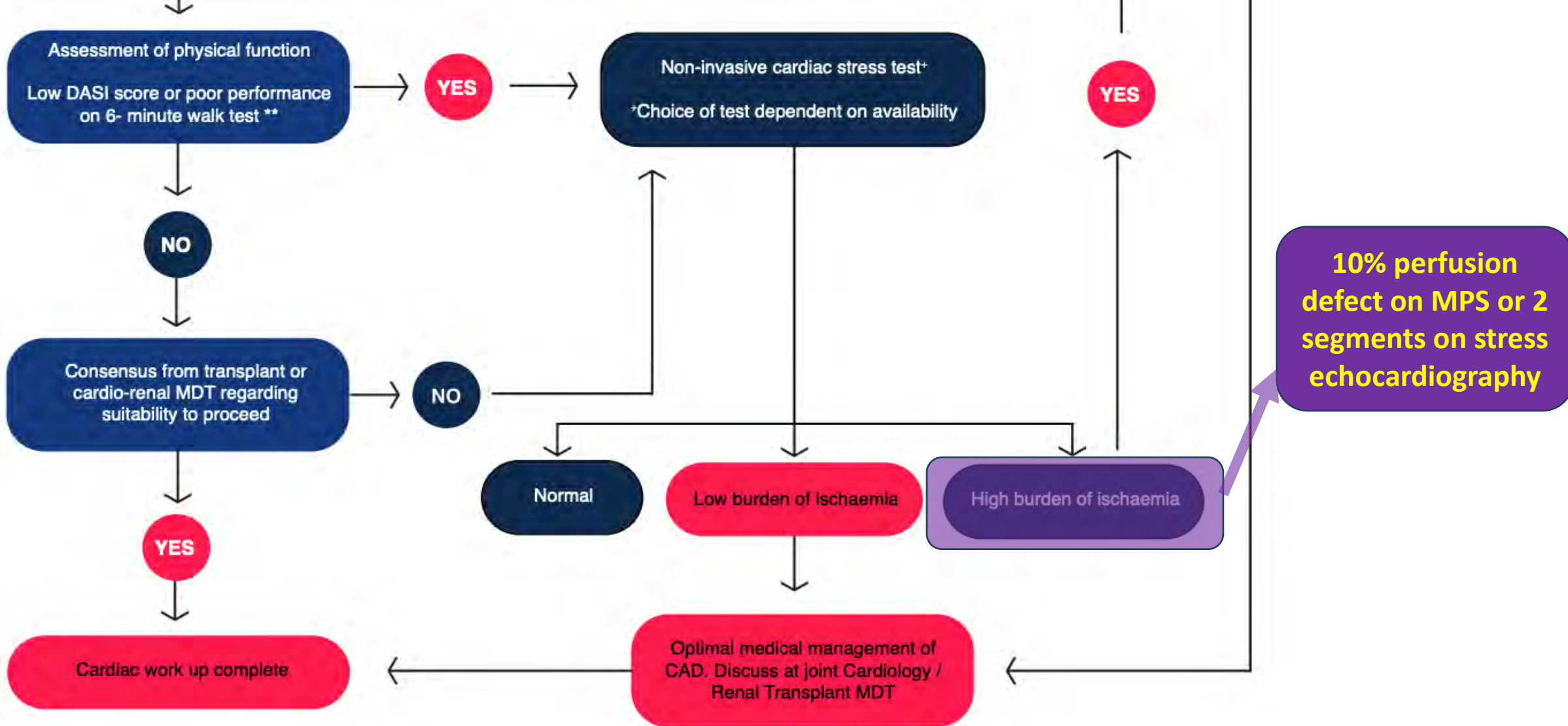


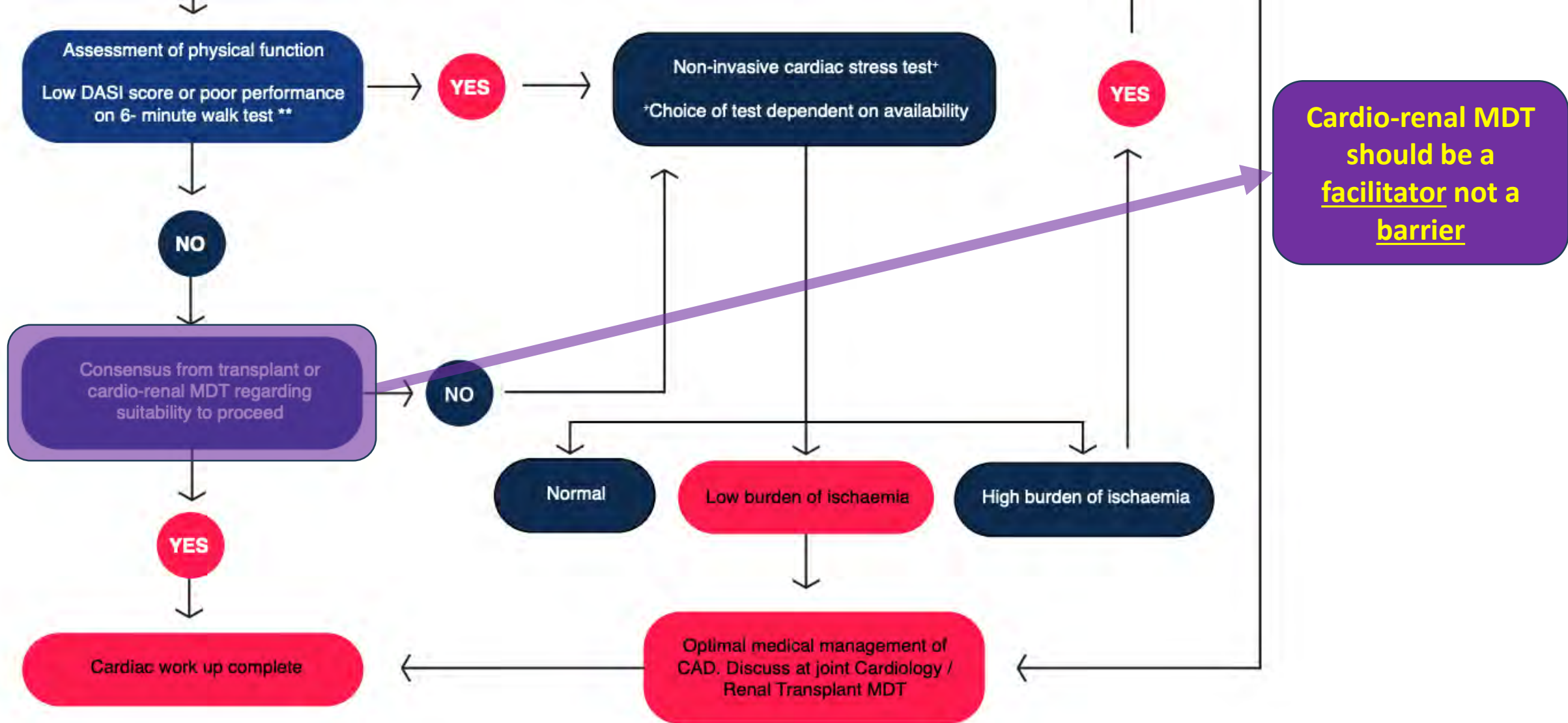
12.75 points

4.31 METs

The higher the score (maximum 58.2), the higher the functional status.







MACE after kidney transplantation in England

Type of MACE	MACE within 1-month	MACE within 3-months	MACE within 6-months	MACE within 12-months
Angina	9 (<0.1%)	19 (0.1%)	30 (0.1%)	48 (0.2%)
Heart failure	18 (0.1%)	58 (0.2%)	81 (0.3%)	105 (0.3%)
Myocardial infarction	178 (0.6%)	256 (0.8%)	287 (0.9%)	342 (1.1%)
Coronary Revascularisation	40 (0.1%)	64 (0.2%)	78 (0.3%)	108 (0.4%)
Stroke	62 (0.2%)	140 (0.5%)	186 (0.6%)	255 (0.8%)
Cardiac-related death	11 (<0.1%)	17 (0.1%)	22 (0.1%)	28 (0.1%)
Total	278 (0.9%)	485 (1.6%)	601 (2.0%)	781 (2.6%)



MACE if we scrap cardiac tests? Experience from Belfast, UK

Article
The Minimisation of Cardiovascular Disease Screening for
Kidney Transplant Candidates

Michael Corr ^{1,*}, Amber Orr ² and Aisling E. Courtney ³

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Outcomes

Any MACE (fatal/non-fatal) within 1-year after kidney transplantation (n=34) **5.7%**

MACE (fatal) rate after kidney transplantation:
 Peri-op **0.0%**
 3-months **0.2%**
 12-months **0.2%**

Thank you for your attention

Adnan.Sharif@uhb.nhs.uk

@AdnanSharif1979



UNIVERSITY OF
BIRMINGHAM



University Hospitals Birmingham
NHS Foundation Trust





Tea break



Second interactive workshop 14.45– 15.35

<p>How people make choices/ shared decision-making Room: Connect (floor 4) Dr Anna Winterbottom Dr Jyoti Baharani</p>	<p>Smooth transition onto home dialysis Room: Develop (floor 3) Dr Mark Lambie Julie Oliver & Elaine Gibson</p>	<p>Transplant workup pathways - new BTS guideline for cardiac assessment Room: Innovate (Main Room, floor 3) Prof Adnan Sharif Dr Shivanand Chavan</p>
<p>Psychosocial care in AKC Room: Achieve (floor 3) Dr Janette Moran</p>	<p>Improving quality of life with symptom management Room: Room: Escape (floor 4) Dr Kathrine Parker Prof. Helen Hurst</p>	

Grab a coffee and check out the industry room – Room BOND 4th Floor

Third interactive workshop 15.35– 16.25

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Cardiac Workup: Anaesthetic Prospective

Shiv Chavan
Consultant Anaesthetist
Lead for Renal Anaesthesia



Objectives

- **Why** do we need cardiac work up?
- **Who** needs them?
- **What** tests are acceptable?



Why?

- Renal Transplant is a “major surgery”
- Involves vascular anastomoses, which need to “survive” to make the surgery “successful”
- There is “reasonable” alternative to keep the patient alive (longevity), with RRT (may be unpleasant but not painful)
- There is a potential that patient may be in a worse situation if the procedure doesn't go as planned!



Objectives of Pre-transplant assessment

- To ensure that transplant is ***technically possible*** (surgical)
- To ensure recipient chances of ***survival not compromised by transplantation*** (anaesthesia, nephrology, surgical)
- To ensure that ***graft survival is not limited by premature death*** (maximum benefit obtained from a limited resource)
- To ensure ***preexisting conditions are not exacerbated*** by transplantation (malignancy/infections)
- To identify measures to be taken to minimise peri- and post-operative complications (cardiology/anaesthesia)
- To inform patients of likely risks and benefits of transplantation

“exact mechanism by which some of the individual objectives may be met remain unclear and inevitably results in an element of subjectivity”

https://bts.org.uk/wp-content/uploads/2016/09/10_RA_KidneyRecipient-1.pdf



Why?

- To get objective risk stratification
- To ensure the intended procedure (i. e transplant) will benefit the patient
- As a “ backup “ for defensive practice
- Medicolegal concerns



Who?

- Patients whose cardio-respiratory reserve can't be assessed
- Patients with significant multi-system co-morbidities
- Significant previous medical problems
- Patients with significant symptoms suggestive of poor cardio-respiratory reserve (angina, SOB etc)



What?

- Resting ECG/Echo
- Stress echo/MIBI/CPEX
- Cardiac catheterisation



What are optimal pre-op cardiac investigations?

- None
- ECG
- Echo
- Cardiac catheterisation/Stress echo



What worries us (the anaesthetists) the most?

- Pre-op hypotension
- Poor LV function/ Moderate to severe diastolic dysfunction
- Pulmonary Hypertension
- Aortic stenosis



What could we do once we have investigations?

- MDT
- Explain the patient all the risks/offer alternatives
- Invasive monitoring
- Post op intensive care
- Accept the risk!



Case Histories: 74-year, male

- End-stage renal disease, on haemodialysis, recent clotted fistula, currently on a line (groin line) (been on dialysis since May 2018)
- Diabetic nephropathy.
- Chronic PUJ obstruction and right-sided ureteric stent
- Type 2 diabetes - 12 years history (no meds)
- Hypertension/ Hypercholesterolaemia
- Obstructive sleep apnoea, on nocturnal CPAP
- Large PE/DVT (2024)
- Suspended because of low blood pressure and co-morbidity
- SVC/Brachiocephalic vein stenosis

Outcome: Cleared, enhanced care, two surgeons, daytime surgery, IR input, post op ITU bed, increased risk of unsuccessful surgery, loss of access. Successful transplant, off HD



33-year, Female

- Spina bifida wheelchair user, Hydrocephalus with previous VP shunt.
- Renal failure presumed due to neuropathic bladder, currently on haemodialysis (for 7 years via a functioning right thigh loop graft)
- Long-term indwelling urethral catheter
- Left above knee amputation due to sepsis (2017).
- Anticoagulation (on warfarin)
- Spontaneous intracerebral bleed, 2022.
- SVC obstruction
- Right femoral tunnelled line causing DVT
- Occluded left external iliac vein
- Obesity.

Outcome: Cleared, enhanced care, two surgeons, daytime surgery, IR input, post op ITU bed, increased risk of unsuccessful surgery, loss of access, had transplant two months ago



77-year, Male

- ESRF due to hypertension, Commenced HD May 2021, CABG – 2022;
- Originally commenced on dual anti-platelet therapy. Now on single anti-platelet therapy, Aspirin.
- GI Bleeding – November 2022; Endoscopy showed GAVE (enlarged blood vessels) and telangiectasia (groups of small blood vessels). Had a Capsule Endoscopy on 26.09.2023.
- Currently needing 3-5 units of blood every week, Hb around 70
- Has live donor

Outcome: ?Not for transplant, still open for review!



38-year, male

- Type 1 diabetes (from age of 4), with multi system complications
 - Orthotopic liver transplant in 2021 for primary sclerosing cholangitis
 - Charcot's joint of the left foot, under Diabetic Foot Clinic
 - Ulcerative Colitis
 - Epilepsy
 - eGFR 10%, not yet on RRT
- **CT :**
There is evidence of a premature atherosclerosis of iliac and renal vessels.
Hepatic arteries are patent but mildly irregular with focal stenosis of proximal celiac axis.
No acute intra-abdominal abnormality.

Outcome: Not for transplant due to calcified iliac vessels



68-year, male

- End stage renal failure on haemodialysis
- Previous prostate cancer 2016
- Longstanding moderate systolic dysfunction on echo with recent deterioration
- Coronary angiogram showing mild to moderate coronary artery disease.
- Previous tuberculosis lymphadenitis
- *Currently well with good effort tolerance. He tells **me he works on a building site** and can easily **walk for a mile** on the flat/swims 20 lengths*
- *Echo: Global left and right ventricular hypokinesia. **LVEF 10%**. Moderate TR suggestive of **significant pulmonary hypertension**,*
- *Coronary Angio: moderate non flow limiting coronary artery disease*

