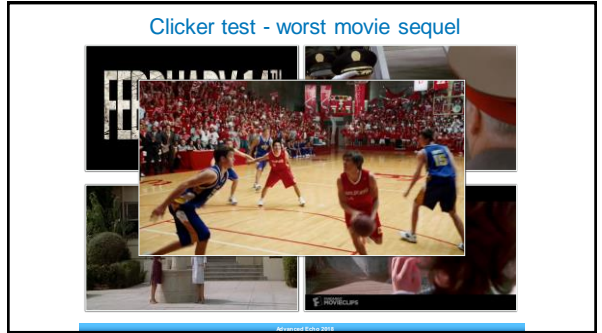
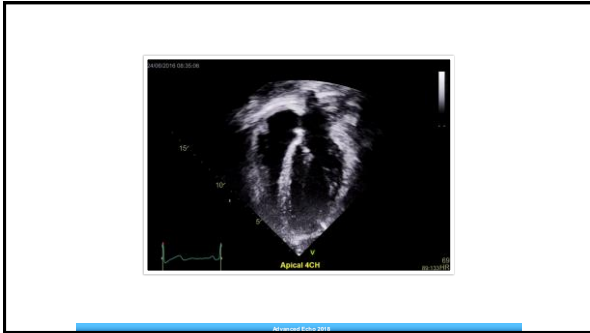


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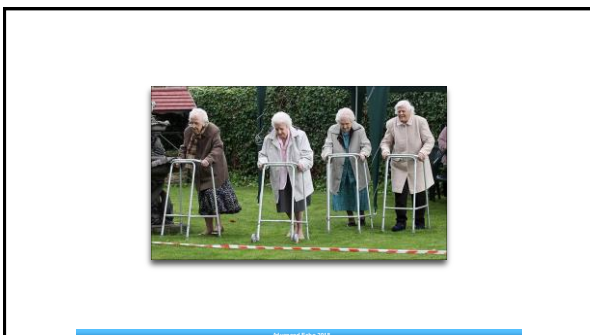
07899 238 992
Text
iMessage
WhatsApp





Predicting outcomes after aortic valve surgery

Stephen Glen



Measurements

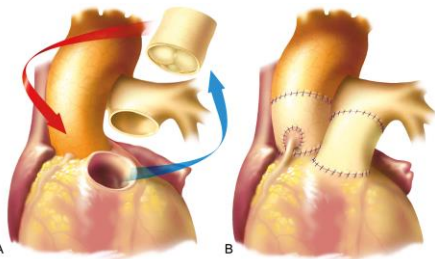
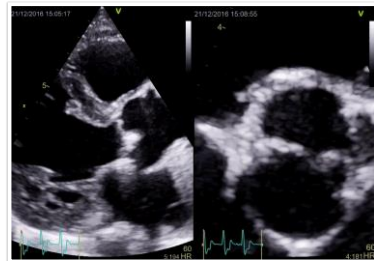
- Ejection fraction 54%
- E/e' = 11 (lateral)
- LVOT VTI 12 cm
- AoV VTI 108 cm
- Peak / mean 68 / 46 mmHg
- LVOT diameter 2.1 cm
- AVA (calc) = 0.7 cm²

Additional info

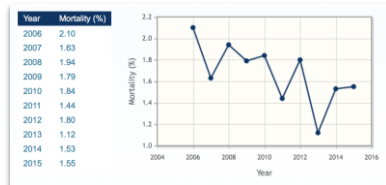
- CABG operation note (1991)- extensive adhesions secondary to radiotherapy. Redo surgery not advised.
- Angiography - patent LIMA to LAD, SVG to OM. SVG to RCA occluded. Severe native RCA disease.
- RCA origin to annulus distance borderline for TAVR. MDT advises TAVR rather than surgery.
- Successful PCI to RCA April 2018

Patient asks - would you have TAVR?

1. Yes
2. No
3. Unsure
4. Other

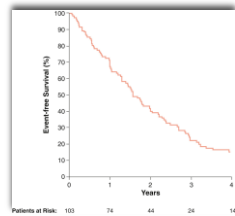


What is the risk of surgical aortic valve replacement in the UK?



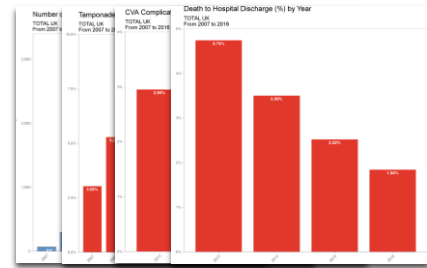
What is the risk of asymptomatic severe aortic stenosis without valve replacement?

- ~50% mortality at two years
- >80% mortality at five years

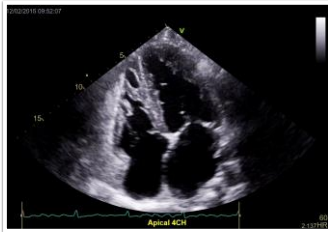


Zilberszac R et al. JACC 2017;10:1:43-50

Is TAVI safe?

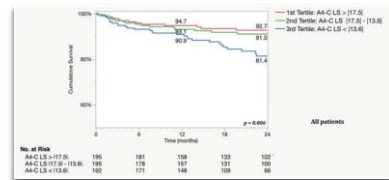


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Advanced Cardio 2017

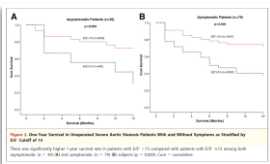
What can we do to prevent LV dysfunction before it becomes irreversible?



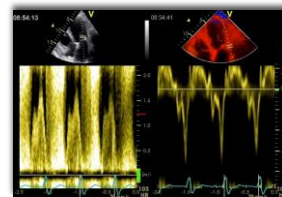
Salaun et al, Eur Heart J 2017

What other routine measurement could have helped?

Prognostic Value of E/A Ratio in Patients With Impaired Left Ventricular Diastolic Function
 Background: The E/A ratio is a measure of left ventricular diastolic function. It is defined as the ratio of early diastolic flow velocity (E) to late diastolic flow velocity (A). A normal E/A ratio is >1.0. An E/A ratio <1.0 is indicative of impaired left ventricular diastolic function. The E/A ratio is a prognostic factor for mortality in patients with heart failure. The E/A ratio is a prognostic factor for mortality in patients with heart failure. The E/A ratio is a prognostic factor for mortality in patients with heart failure.



Biner et al, JACC:Cardiol Img 2010;3:899-907



Advanced Cardio 2017



What proportion of TAVI patients have cardiac amyloid?

1. 1%
2. 6%
3. 10%
4. 16%
5. 26%

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ESC European Heart Journal (2017) 38, 2879–2887
doi:10.1093/eurheartj/ehw150

Unveiling transthyretin cardiac amyloidosis and its predictors among elderly patients with severe aortic valve disease

Adam Castano, Rachel Morgan, Tamim Nazif, Rebecca Hahn

16% prevalence, usually low-flow, low gradient

CLINICAL RESEARCH
Heart failure/cardiomyopathy

- Key Findings:**
 - 16% prevalence of ATTR-CA in elderly patients with severe aortic valve disease.
 - ATTR-CA is associated with low-flow, low-gradient aortic stenosis.
- Predictors for ATTR-CA:**
 - Clinical & Demographic:** Older age, male, low stroke gradient AS, low stroke/low pressure, elevated EDP.
 - Echocardiographic:** Low EDP, prolonged diastolic mitral regurgitation, low mitral regurgitation flow, low TR Vmax.
 - Electrocardiographic:** Short QTc, prolonged QTc, prolonged QTc/QTd.
 - Other:** Low mitral regurgitation flow, low stroke gradient AS, low stroke/low pressure, elevated EDP.

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Occult Transthyretin Cardiac Amyloid in Severe Calcific Aortic Stenosis: Prevalence and Prognostic Impact in Patients Undergoing Surgical Aortic Valve Replacement

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What other basic measurements help?

Tricuspid Regurgitation is Associated With Increased Risk of Mortality in Patients With Low-Flow/Low-Gradient Aortic Stenosis and Reduced Ejection Fraction

Results of the Multicenter TROPAS Study (Task Force on Patient-Specific Aortic Stenosis)

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FIGURE 3 Impact of TR on 30-Day Mortality

Overall p < 0.05

- TR severity 0/1: 6.9% mortality (n=572)
- TR severity 2: 10.8% mortality (n=437)

PERSPECTIVES

WHAT'S KNOWN? TR is often observed in patients with LF-LG AS and low LVEF, but its impact on prognosis is unclear.

WHAT'S NEW? Among patients with LF-LG AS, those with TR grade ≥2 have a 2-fold increased risk of mortality. Furthermore, TR grade ≥3 is independently associated with increased 30-day mortality in the subset of patients undergoing AVR.

WHAT'S NEXT? The presence and severity of TR should be systematically integrated in the risk stratification process of patients with LF-LG AS and reduced LVEF. Further studies are needed to determine whether concomitant tricuspid annuloplasty would translate into better outcomes in the subset of patients undergoing AVR.

The graph shows the impact of tricuspid regurgitation severity on postoperative (30-day) mortality in the subset of patients who underwent aortic valve replacement.

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Predictors for worsening RV function

- Surgical versus transcatheter valve replacement (OR 4.0)
- Baseline RV dilatation (2.4)
- Baseline tricuspid regurgitation (moderate / severe, 2.6)



New echo markers



Relative valve load

Relative valve load

- Valvuloarterial impedance (Zva) as a measure of global left ventricular afterload
- Zva is a good prognostic indicator in asymptomatic patients with severe aortic stenosis
- Vascular load may still be high after TAVR and affect outcome

Valvuloarterial impedance

- Measure stroke volume, peak aortic valve gradient and mean gradient as usual
- Index this measurement for body surface area
- Zva is (systolic blood pressure + mean gradient) divided by stroke volume index
- Relative valve load is mean gradient divided by Zva

Relative valvular load

- RVL ≤ 7.95 ml/m² predicts adverse outcome from TAVR
- Better specificity for overall and cardiovascular mortality than:
 - mean gradient
 - aortic valve area
 - stroke work indices
 - impedance
- Robust predictor of 1 year mortality in normal and low flow aortic stenosis

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The best predictor of mortality?



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So, for our patient...

- Is the ventricle really normal?
- Is there underlying myocardial disease?
- What is the right heart status?
- Valve replacement (by whatever means) is usually the best option

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Conflict of interest

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Redfors et al, Circulation 2017; 135:1956-1976

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