

Mechanical vs Bioprosthetic Heart Valves: A comparison study in ESRD

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Background & Aims

- Haemodialysis is associated with significant bleeding risk¹
- This increases with warfarin and/or antiplatelet use
- There is growing controversy about warfarin use in HD^{2,3}
- Metallic heart valves necessitate life-long anticoagulation
- The ACC/AHA guidelines in 1998 recommended metallic valves in ESRD patients
- The 2014 guidelines removed this but suggested that bioprostheses are preferred if anticoagulation undesirable⁴
- Metal valves are still recommended under the age of 60
- We hypothesised that, in ESRD patients with increased bleeding risk coupled with poor 5-year survival, the use of metal valves may carry more risk than benefit

Methods

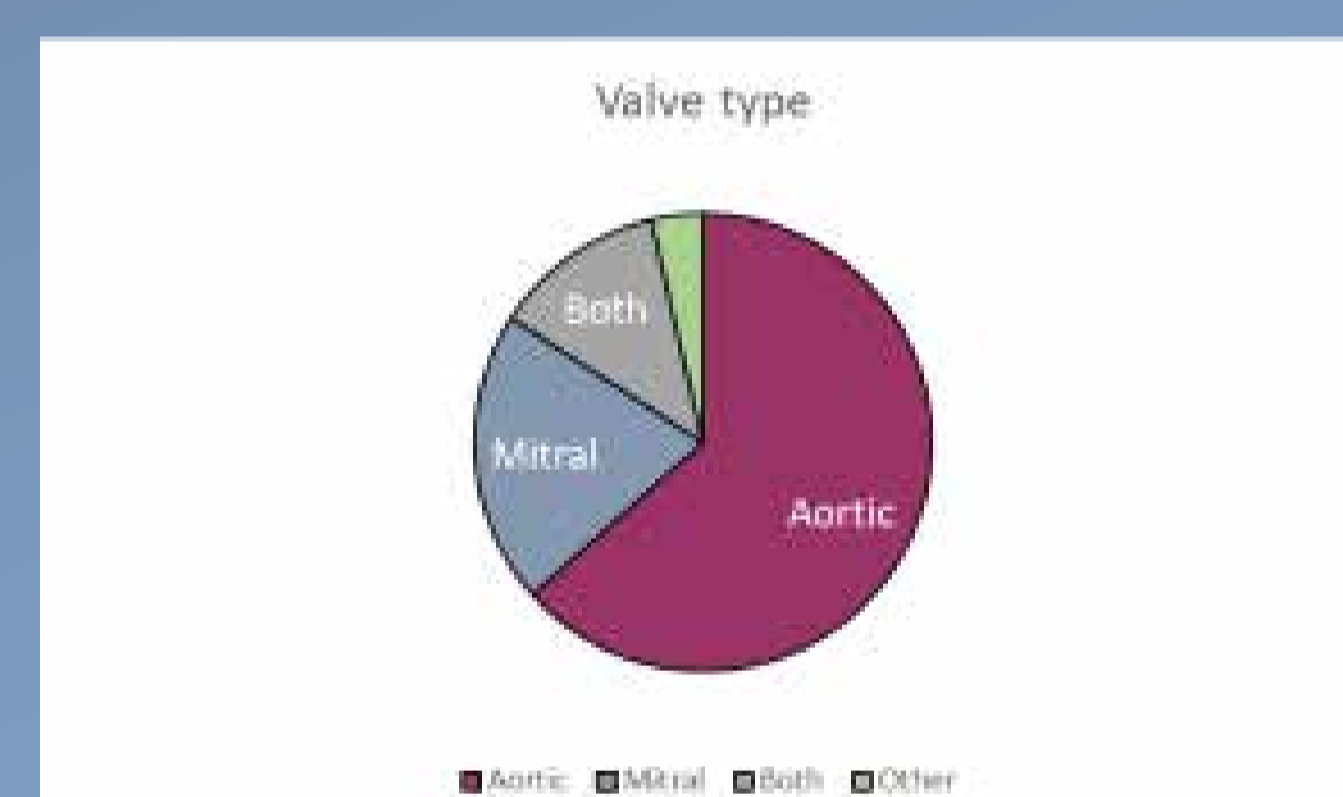
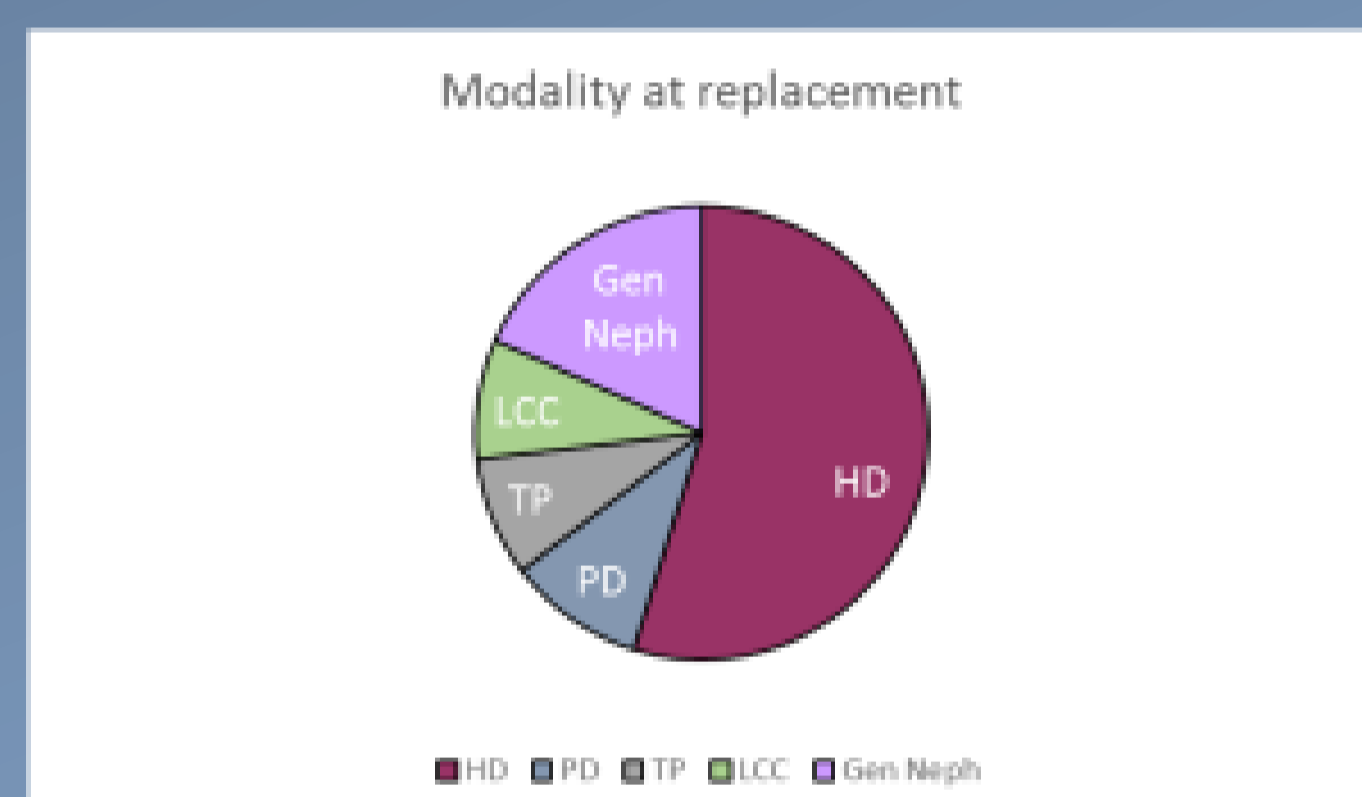
- We performed an observational, retrospective single centre study
- We included all historical ESRD patients with a valve replacement
- Complete electronic case notes and discharge summaries for demographics, comorbidities and outcomes
- Outcomes measures included were:
 - Major bleeding event (ISTH definition plus need for admission)
 - Infective endocarditis
 - Tissue valve redo
 - Calciphylaxis
 - Death

Results

82 patients identified
419 patient years
Metal valves=43 Tissue valves=39
62% male 23% diabetic
39% IHD, 23% simultaneous CABG
Median age at replacement 58 years; metal 54y vs tissue 66y

| | Metal | Tissue |
|-----------------|--|---|
| Anticoagulation | All warfarin 2 aspirin 1 dual antiplatelets | 5 warfarin 21 aspirin |
| Bleeding | 44 major bleeding events 19.6 per 100-pt-years 2 fatal | 9 major bleeding events 4.6 per 100-pt-years |
| Endocarditis | 23% | 10% |
| Calciphylaxis | 3 | 0 |
| Time to death | 5.7 years | 3.6 years |

3 tissue valves required re-do (1 paediatric, 2 severe endocarditis)
Echo reports suggested no accelerated calcification of tissue valves⁵



Conclusions

- Standard indications for metal vs tissue valves may not apply in the HD population
- There is seldom an indication to commit a patient with ESRD to life-long anticoagulation
- Even if the prospects of transplantation are reasonable, anticoagulation still exposes the patient to significant procedure related risk
- Choice of valve replacement should be a shared decision also involving the patient

References

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