Aortic Stenosis

1. Give an overview of the disease, it’s diagnosis, and management

Aortic Stenosis

# Definition

Disease where the aortic valve narrows.

# Incidence, Age, Sex, Geography

It is a common disease. Factors increasing the likelihood of AS include:

* Age (*the strongest factor*)
* Male sex (*mild risk factor*)
* Previous Rheumatic fever (*strong risk factor, rarely present*)

Rheumatic fever is more important in developing nations.

# Aetiology, Pathology (macroscopic & microscopic)

There a three causes/patterns of AS:

1. Senile calcific degeneration (*i.e. primary disease*)
2. Chronic Rheumatic fever
3. Congenital Aortic Stenosis

Primary AS is overwhelmingly more common in developed nations than any other cause. In this form, a process similar to atherosclerosis with fibrosis and calcification of the valve leaflets is seen.

Patients with congenitally bicuspid valves do not have stenosis at birth, but do develop **early-onset** degenerative AS.

True congenital AS is rare. It may be further classified by site as **valvular**, **sub-valvular**, or **supra-valvular.**

# Symptoms, Signs and Tests

The classic triad of symptoms is:

1. Breathlessness (*classically with the character of heart failure*)
2. Angina
3. Syncope (*classically exhertional*)

The classic examination findings are:

1. Ejection systolic murmur, radiating to the carotids, heard best over the right upper sternal border in expiration
2. Signs of obstruction: *heaving LV apex,* *slow-rising pulse, narrow pulse pressure*
3. Signs of left-sided failure: *congested lungs*

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| **Exam gem:** listen carefully for associated reflux and/or mitral valve disease – these patients (*especially if younger*) may have **rheumatic heart disease**. |

Relevant tests include:

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| Test | Likely findings |
| Echo | Diagnostic and allows characterisation of lesion. |
| ECG | Several possibilities:   1. Normal ECG 2. Left bundle branch block 3. LVH with strain pattern |

# Prognosis and Management

Aortic stenosis is a slowly progressive disease. However, the onset of symptoms is a marker of end-stage disease. The important mode is sudden cardiac death.

More than 95% of sudden cardiac deaths in AS occur in those with symptoms.

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| Presence of symptoms | Prognosis |
| Absent | 1% per year will die. |
| Present | 25% will be dead at 1 year  50% will be dead at 2 years  Symptoms of heart failure are associated with the worst outcomes. |

## Management

Surgical management is prognosis-modifying; medical management is not. As the onset of symptoms heralds a step-change in prognosis, patients with symptoms should therefore be considered for intervention.

Patients who are not symptomatic should be monitored for symptoms and echo-evidence of decline.

Management options are:

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| Surgical valve replacement | Probably best intervention but physiologically taxing.  Also:   * Allows CABG * Allows TAVI   Mortality is approx. 5% in well patients, but risk increased by:   * Age * LV dysfunction |
| Trans-catheter aortic valve implantation | Gentler intervention; however, cannot be done if:   * Unsuitable anatomy * LV/aortic thrombus present * Need for other valvular intervention |
| Medical management | Only if:   1. neither interventional approach is appropriate 2. patient choice |

# References

1. Davidson’s Principles and Practice of Medicine; 22nd Edition; pp620-623
2. Aortic Stenosis; Medscape; <https://emedicine.medscape.com/article/150638-overview> (last accessed 21/5/2018)