MISDIAGNOSIS OF ACUTE AORTIC DISSECTION A MULTI-CENTRE 10-YEAR RETROSPECTIVE OBSERVATIONAL COHORT STUDY

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INTRODUCTION

Acute Aortic Dissection (AAD) is a national patient safety issue. It is a life-threatening, time-critical disease that carries a high mortality rate and can be challenging to diagnose due to its diverse presentation.

3,906 Aortic Dissection Events[1] (a life-threatening medical emergency)

1,242 Hospital Admissions due to Aortic Dissection[2]

OBJECTIVES

To identify the number and rate of missed or delayed diagnosis of AAD in a large NHS Trust that covers North-East London (Barts Health NHS Trust)

To identify themes around missed or delayed diagnosis of AAD

METHODS

PERIOD

01 January 2012 to 31 December 2022

DESIGN STUDY

Mixed study design

DATA COLLECTION

- Clinical Governance Databases
- DATIX logs
- Serious Incidents logs
- Case record logs

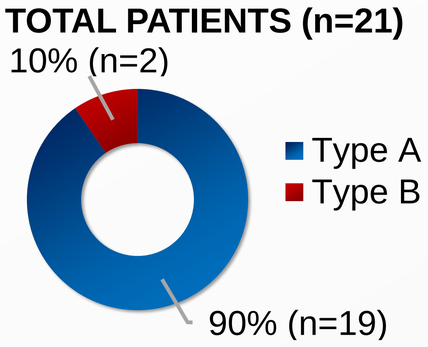
DATA ANALYSIS

Quantitative and qualitative thematic analysis

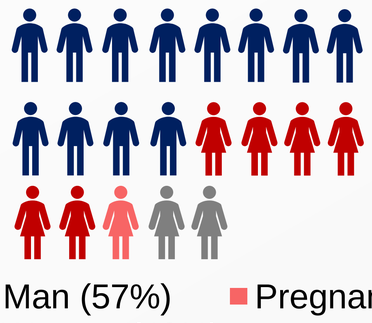
RESULTS

1 DEMOGRAPHICS

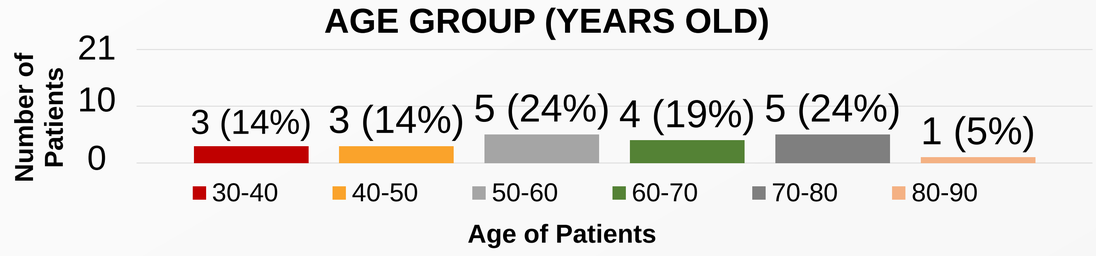
TOTAL PATIENTS (n=21)



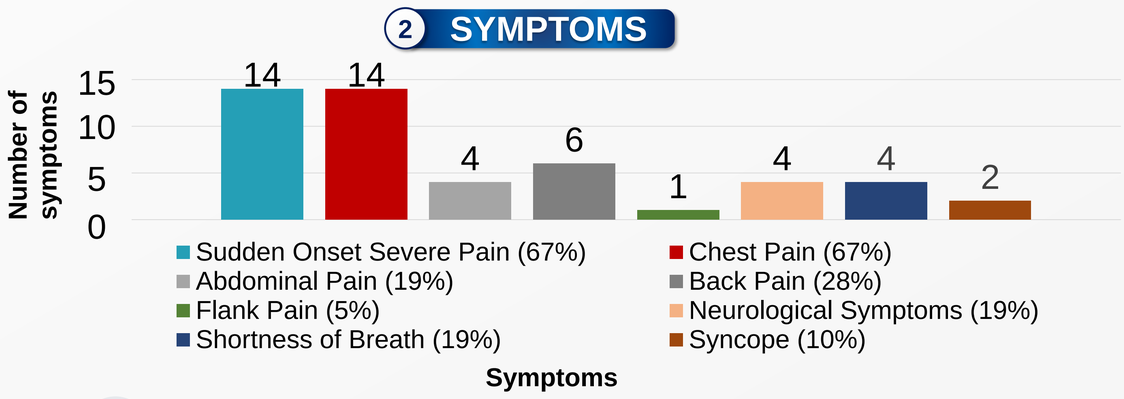
GENDERS



AGE GROUP (YEARS OLD)



2 SYMPTOMS



Risk factor hypertension present in 71% (n=15)

3 INVESTIGATION AND SCORING TOOLS

POCUS (n=6)

- Normal (57%)
- Abnormal (5%)

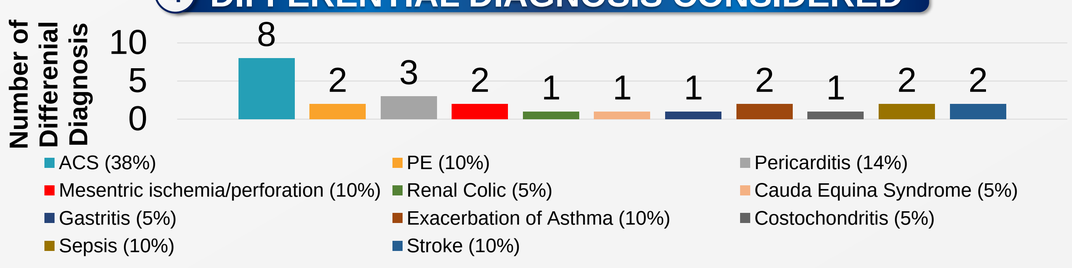
CHEST X-RAY (n=10)

- Normal (38%)
- Abnormal (9%)

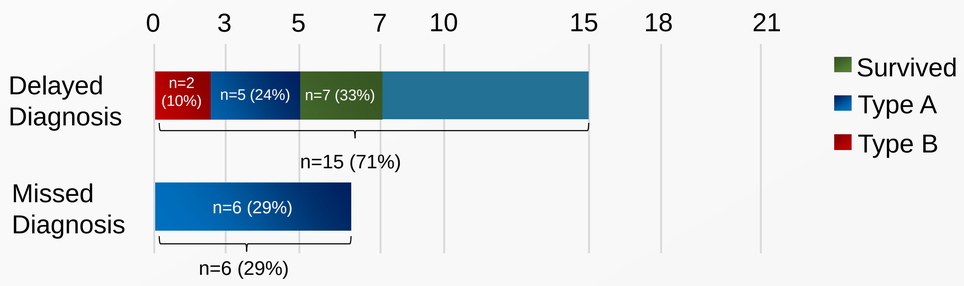
Aortic Dissection Detection Risk Score

Score	Frequency	Percentage
0	4	19%
1	6	29%
2	11	52%

4 DIFFERENTIAL DIAGNOSIS CONSIDERED



5 MISDIAGNOSIS AND OUTCOME



6 THEMES

90% AAD not consider as a differential diagnosis (n=19)

52% Atypical symptoms leading to alternative diagnosis (n=11)

48% Classic symptoms confused with ACS or PE (n=10)

29% False reassurance with normal clinical findings (n=6)

14% Referral back to district hospital once ACS ruled out (n=3)

5% No consideration of AAD during Triage (n=1)

5% Lack of recognition of Turner's Syndrome as a risk factor (n=1)

5% Delay in recognising dissection on CTA (n=1)

5% Failure to appreciate aortic dilatation on POCUS (n=1)

5% Confirmatory bias of investigations suggesting alternative diagnosis (n=1)

CONCLUSION AND RECOMMENDATION

Diagnostic Challenges
Misdiagnosis of AAD is often caused by atypical presentations and knowledge gaps.

Education
Increasing awareness and developing comprehensive education bundle around AAD diagnosis is imperative in pre-hospital and ED setting.

Pathway
Advocacy for developing a standardized AAD pathway to optimize best outcomes.

Research
Further prospective studies are recommended across the U.K.

National Registry
Establishment of a national registry to support future research.

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3. McLatchie R, Wilson S, Reed MJ, Ticehurst F, Easterford K, Alawiye S, Cowan A, Gupta A, on behalf of the Aortic Dissection Diagnosis Research Group. Why do Emergency Department Clinicians Miss Acute Aortic Syndrome? A Case Series and Descriptive Analysis. ECJ 2023; 19: 11153

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