Cardiovascular, Obstetric and Neonatal outcomes in women with a previous Fontan repair

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Method: Patient selection

- Data series 2004-2016, St Mary's Hospital
- All women attending the joint obstetric cardiac clinic with a univentricular physiology
- Excluded if no Fontan surgery or preconception
- Identified from local database and retrospective case note review

Outcomes

- **Cardiovascular**
- **Obstetric**
- **Neonatal**

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Method: Data collection

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Cardiac outcome	Obstetric Outcome	Neonatal outcome
Arrhythmia	Miscarriage	Prematurity
Heart failure	Pregnancy Induced Hypertension (PIH)	Small for gestational age (SGA)
Deterioration in systemic ventricular function	Pre-eclampsia (PIH with PCR >30mg/mmol)	Fetal cardiac anomaly
Myocardial infarction (MI)	Post- partum haemorrhage	Stillbirth
Endocarditis	Mode of delivery	Neonatal death
Thromboembolism		

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Study population

- 23 women attended clinic with univentricular physiology

- 14 excluded:
  - 12 preconception only, 2 no Fontan surgery

- **9 women with a total of 19 pregnancies**

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Demographics

- Median age 23 year (19-24)
- Median BMI 27 (22-31)
- 3 had single pregnancy, 6 had more than one
- 1 smoker

67% (6/9) had pre-conception counselling

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Baseline cardiac data

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Of the 9 women

- 7 classical Fontan
- 2 total cavo-pulmonary connection (TCPC)
- All had morphological left ventricle as systemic ventricle

AV Regurgitation (5/9)

- 4 Mild
- 1 Moderate

Medication

- 7 were taking oral anticoagulation therapy
- 3 were taking ACE inhibitor, 2 on beta blocker

- 3/9 had epi-cardial pacemakers

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Baseline cardiac data: function

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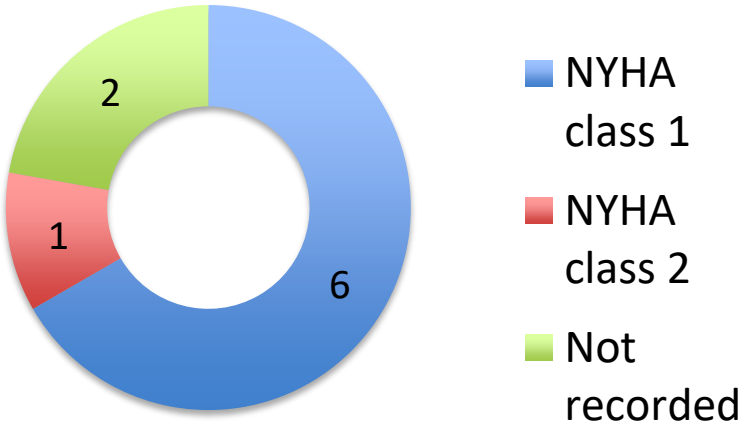
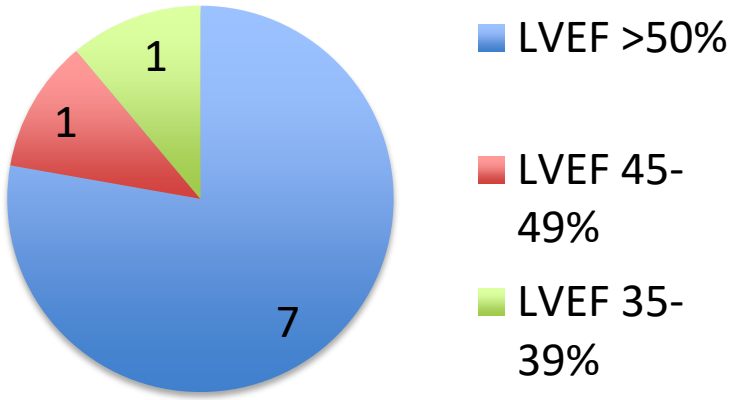
NYHA functional class



Systemic ventricular function



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Cardiovascular outcomes

11% (n=2)

1. Progressive left ventricular dilatation
2. Bilateral pulmonary embolism

There were NO

- **Arrhythmias**
- **Hypertension***
- **MI**
- **Endocarditis**

* Majority (78%) on prophylactic Aspirin

Obstetric/Neonatal outcomes

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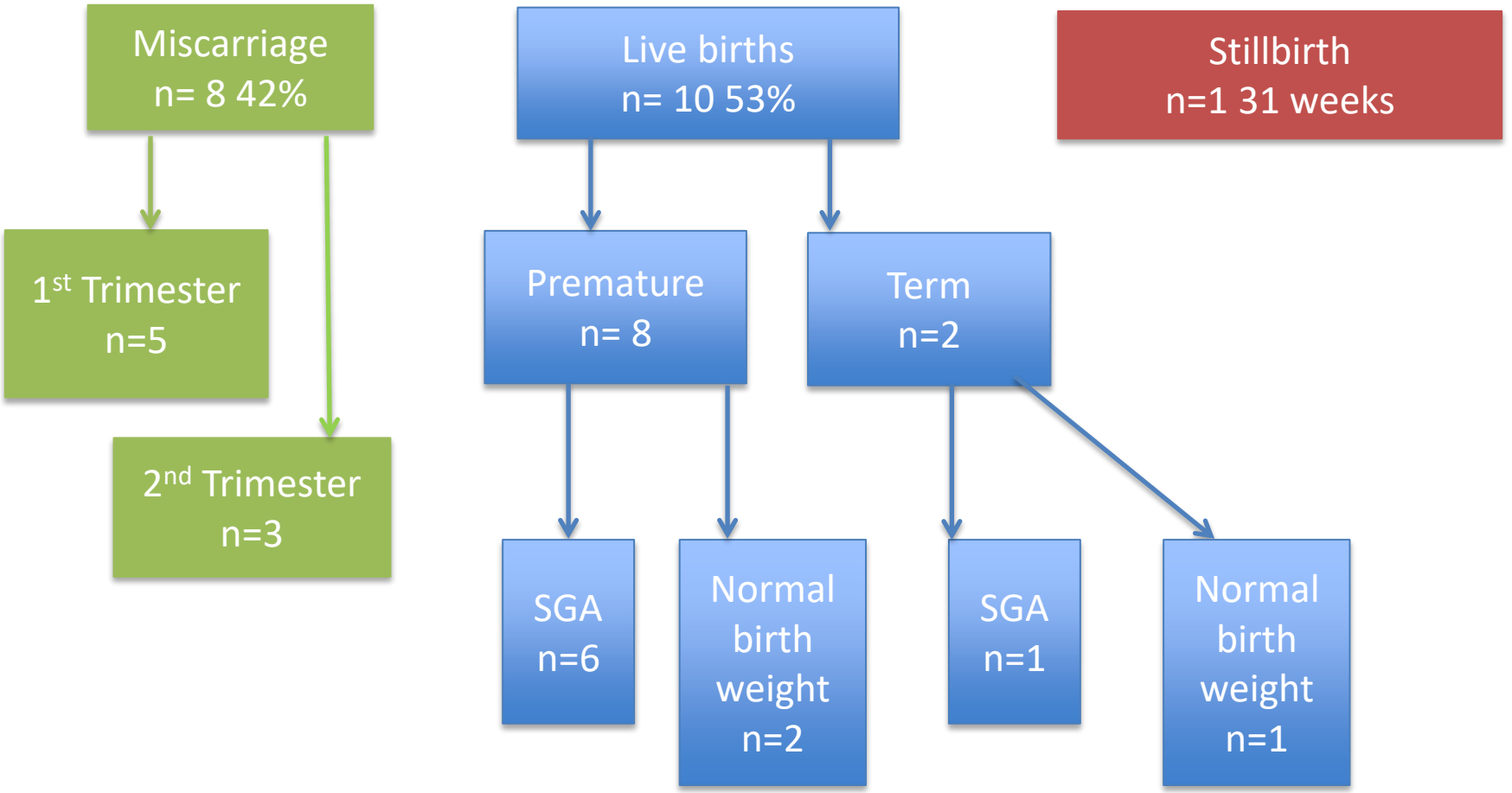

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Obstetric outcomes

- 63% (n=5) pre term caesarean section (CS)
- 1 term delivery by CS
- 1 post partum haemorrhage

- **High rate of CS- 60% overall**

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Neonatal outcomes

- Median gestation 31 weeks
- 70% (n=7)live births SGA
- 90% (n=9) NICU admission

- **No congenital heart disease**
- **No neonatal deaths**

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Conclusions

- Significant incidence of cardiovascular complications

- High incidence of obstetric and neonatal complications
  - miscarriage
  - prematurity
  - growth restriction

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Thank you

Declaration of publications

Bonner S.J, Asghar 0, Roberts A, Vause S, Clarke B, Keavney B. Cardiovascular, obstetric and neonatal outcomes in women with previous Fontan repair. *EJOG* 2017;219: 53-57

Data contributed to Caudwell M, Steer P, Bonner S et al. Retrospective UK multicentre study of the pregnancy outcomes of women with a Fontan repair. *Heart* 2017 Sep 27

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Background

- The Fontan procedure has significantly improved prognosis and survival for women with complex congenital heart disease characterised by univentricular physiology

- Consequently, higher numbers of women are reaching childbearing age and contemplate pregnancy

- Increased incidence of cardiovascular, obstetric and neonatal complications