Cardiac Complications in Pregnant Patients with Acquired Heart Disease

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Background & Objectives

- **Cardiovascular diseases** can complicate 0.2-4% of pregnancies in western countries
  - Older age at first pregnancy increases the risk of cardiovascular disease
  - Improvement in surgical treatment of congenital heart disease
  - Unknown or non-treated cardiovascular disease in immigrant patients

- Maternal heart disease is the **major cause of maternal death** during pregnancy
  - 10-15% maternal death

- Changes in the cardiovascular system during pregnancy can contribute to complications in patients with previous heart disease

**OBJECTIVES**

1. Describe cardiac complications in a group of pregnant women with acquired heart disease
2. Identify the predictors of cardiac complications

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Methods & Results (I)

- 89 pregnant patients with heart disease (October 2010-April 2013) referred to a high-risk pregnancy and heart disease outpatient clinic
- Follow-up by a multidisciplinary team in a tertiary referral centre
- Analyse basal characteristics, cardiac and obstetric complications (pregnancy and post-partum period), maternal and neonatal outcomes

BASAL CHARACTERISTICS

- Mean age: 32.7 ± 5 years
- First visit (cardiology): 24.8 W
- CVRF (smoking, HBP, chronic/gestational diabetes): 27%
- Sinus rhythm: 89%

NYHA basal ≥ II (5.6%) → NYHA pregnancy ≥ II (24.7%)

TYPE OF HEART DISEASE

- 57% Valvular HD
- 14% Arrhythmia
- 14% Cardiomyopathy
- 10% Ischemic
- 10% PM-ICD
- 5% Pericardium
- 2% Aorta
- 1% Others
Results (II)

**CARDIAC DATA**

- Left-sided obstruction/regurgitation:
  - MS/AS moderate-severe: 20.2%
  - IM/IA moderate-severe: 10.1%
- Mechanical/Biological prosthesis: 7.8%
- LVEF < 45%: 9%
- Previous symptoms: 46.1%
- Previous intervention: 29.2%
- Need for treatment:
  - Chronic: 34.8%
  - Anticoagulation: 17%

**OBSTETRIC DATA**

- 45% previous obstetric complications

**WHO-MODIFIED CLASSIFICATION**

- 32.6%
Results (III)

**OBSTETRIC OUTCOMES**

- Type of labour: **29% C-section**
  - **76% obstetric indication**
- **16.4%** instrumented
- **43%** induction
- **96.6%** peridural anaesthesia

**NEONATAL OUTCOMES**

- Newborns: **85**
- Weeks of gestation: **37.8 ± 4**
- Weight: **3048 ± 653** gr.

**OBSTETRIC COMPLICATIONS**

- **Pregnancy**: **17%**
  - (hypertensive disorders > placenta previa)
- **Labour**:
  - **10.2%** vaginal tear
  - **4.5%** haematoma/haemorrhage

**NEONATAL COMPLICATIONS**

- **Prematurity**: **16.5%**
- **Small-for-gestational age**: **16.7%**
- **Foetal death**: **3**
## Results (IV)

### CARDIAC COMPLICATIONS

<table>
<thead>
<tr>
<th>Type of complication</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart failure</td>
<td>11 (12.4%)</td>
</tr>
<tr>
<td>Arrhythmia</td>
<td>7 (7.9%)</td>
</tr>
<tr>
<td>Endocarditis</td>
<td>2 (2.2%)</td>
</tr>
<tr>
<td>Angina pectoris</td>
<td>2 (2.2%)</td>
</tr>
<tr>
<td>Stroke</td>
<td>1 (1.1%)</td>
</tr>
<tr>
<td>Aorta</td>
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<td>2 (2.2%)</td>
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<tr>
<td>Cardiogenic shock</td>
<td>3 (3.4%)</td>
</tr>
<tr>
<td>Aorta</td>
<td>1 (1.1%)</td>
</tr>
</tbody>
</table>

### Pregnancy

- **27% (N=24)**

### Labour

- **1.1% (N=1)**

### Postpartum

- **6.7% (N=6)**

#### Percutaneous balloon valvuloplasty: 3

#### Open heart surgery: 2
CARDIAC COMPLICATIONS

PREGNANCY  
27% (N=24)

LABOUR  
1.1% (N=1)

POSTPARTUM  
6.7% (N=6)

PREDICTORS OF CARDIAC COMPLICATIONS

UNIVARIATE ANALYSIS:
- NYHA ≥ II pregnancy (68.2% vs. 16.4%; p<0.001)
- LVEF < 45% (75% vs. 24.7%; p=0.007)
- WHO-mod III-IV (51.7% vs. 18.3%; p=0.002)
- Need for percutaneous/surgical treatment (100% vs. 25%; p=0.002)
- C-Section (48% vs. 21.3%; p=0.015)

MULTIVARIATE ANALYSIS:
NYHA ≥ II pregnancy  
(OR 7.14, IC 2.18-23.36; p=0.001)
Conclusions

- A number of pregnant patients with acquired heart disease present cardiac complications.
- Patients with a higher risk of complications (ventricular dysfunction, NYHA functional class ≥ II, need for percutaneous or surgical treatment during pregnancy) should be more strictly controlled.
- NYHA functional class is the most powerful predictor of cardiac complications in this group of patients.

Thank you for your attention!