Termination of Pregnancy Epidemiology following Fetal CHD Diagnosis

Germanakis I. (1), Bagaki A. (1), Sifakis S. (2), Makrigiannakis A. (2)

Pediatric Cardiology Unit, Dpt of Pediatrics, (1);
Dpt of Obstetrics and Gynecology(2)
University Hospital Heraklion, Faculty of Medicine,
University of Crete, Greece
There is no conflict of interest
Neonates with CHD: fetal CHD survivors

- Natural course **without** fetal diagnosis
Neonates with CHD: fetal CHD and fetal diagnosis survivors

• Natural course following fetal diagnosis

- Termination of Pregnancy
- Liveborn
  - Unexpected
  - Neonatal CHD
- Intrauterine Death
- Neonatal undiagnosed CHD Death

AEPC 2016 Germanakis et al.
Epidemiology of liveborn CHD

O11-1. AEPC 2016 Germanakis et al.
The Impact of Fetal Echocardiography on the Prevalence of Liveborn Congenital Heart Disease

Ioannis Germanakis · Stavros Sifakis


• p. TOP: p1 X p2 X p3
• p. TOP=


• p. Liveborn CHD= 1 - p.TOP - p.IUD

• **p. Liveborn CHD** = 1 - **p.TOP** - **p.IUD**

• If **sensitivity 35%** and TOP **43%** .. **15% overall reduction of the prevalence of the most severe forms of congenital heart disease**

• If an **earlier diagnosis** could be achieved .. associated with an average 1.4-fold increased probability of termination, the overall reduction of the prevalence of congenital heart disease could approach **21%**
Aim

• To document the probability of TOP
• following fetal CHD diagnosis
• in a Mediterranean Island population

• Important information
• For Psychosocial Research Studies
• For Health Service planning

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Study Population

- **Greek islands:**
  - 227 / 6000 inhabited
  - 78 > 100 people

- **CRETE**
  - 621,000 people
  - 1 birth / 100 / yr
  - 6,000 births / yr
  - Expected 12 critical neonatal CHD /yr
  - Air transfer cost 10-20,000E

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Methods

• **Retrospective study** of medical reports and fetal echocardiogram findings performed
  • over **6 years** (1997-2013)
  • single academic referral center for fetal cardiology
  • fCHD = any abnormality in fetal echocardiogram
  • Critical fCHD : ductal dependent postnatal circulation.
  • Caryotype findings and pregnancy outcome regarding TOP were obtained from families or treating physicians.
  • **Odds Ratios (O.R) nd 95%C.I. for TOP** following diagnosis of
  • any fCHD,
  • critical fCHD,
  • caryotype abnormalities
Results

- **Population**
- 1808 out of 1847 fetuses (1804 pregnancies), with complete medical information, evaluated <24th GW, were included.

**Incidence CHD**
- fCHD 27% (n=499),
- critical fCHD 1.9% (n=34).

**Caryotype**
- 10% of cases (n=185),
- 13% abnormal (n=25)

**TOP**
- TOP overall 1.8% (n=32),

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Results

- **Terminations in fetal CHD**
  - fCHD(+): 29/493  \(5.7\%\)
  - fCHD(-): 3/1312  \(0.2\%\)
  - O.R: 26.2 (7.9-86.8),
  - TOP following fCHD diagnosis.
  - \(p<0.001\)

- **Critical fCHD**: 19/34  \(56\%\)
  - No or no critical: 13/1771  \(0.7\%\)
  - O.R: 185 (76-449)
  - TOP following critical fCHD diagnosis.
  - \(p<0.001\)

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Results

- CHD specific TOP rates
- VSD (2/239)
- AVSD (3/8)
- HLHS (3/5)
- P. Atresia (5/5)
- Tr. Atresia (1/2)
- DORV (2/4)
- TOF (3/9)
- Truncus Art. (1/2)
- TAPVC (1/1)
- CoA (1/12)
- DILV (1/2)
• The presence of caryotype abnormalities
• Borderline increased TOP probability
• O.R: 3 (0.9-9.6)
• Caryotype abnormalities in fCHD and critical fCHD groups did not differ significantly between subgroups deciding for TOP compared to those with pregnancy continuation.
Limitations

• **CONTRA**
  - Retrospective study
  - Real incidence of TOP following fCHD might be higher (incomplete FUP)
  - Possible higher TOP in fetal CHD with caryotype abnormalities (early TOP prior to anomaly scan)
  - Failure to detect all cases of fetal CHD

• **PRO**
  - Isolated geographically population
  - Single fetal cardiology referral center
  - Almost complete postnatal FUP of fCHD
  - Free and direct access to public sector fetal cardiology service
Conclusions

- A high rate of TOP following fetal CHD diagnosis was documented
  - For fCHD: 6%
  - For Critical CHD: 56%

- fCHD type and severity influenced TOP probability

- Further study is needed
  - Document factors that influence family decisions
  - Address factors related to incorrect information
  - Cross-cultural studies would be helpful
  - Support services should be established.

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Thank you for your attention!

GRAZIE!