

## AEPC-YIA 選別講演 (I-YIA)

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## [I-YIA-01] Longitudinal Hemodynamic Assessment of Fetuses with TGA to Predict The Perinatal Course – The Pilot Study

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Transposition of the great arteries (TGA) is one of the most common congenital heart diseases, well-tolerated prenatally, however life-threatening for the newborn. The main concerns are: the foramen ovale (FO) restriction and persistent pulmonary hypertension (PPHN).

The aim of this study is to predict the hemodynamic status of the newborn with TGA based on longitudinal prenatal echocardiographic observation.

Methods: Retrospective-prospective analysis of echocardiographic examinations of 70 fetuses with simple TGA.

Results: Based on our observations we developed a flowchart of fetal TGA assessment presented below. Its usefulness in predicting the newborn's condition is shown in the table.

1. FO flow R → L or bidirectional:
  - a. blood mixing (Color Doppler) clearly visible → NO RESTRICTION.
  - b. mixing limited by interatrial septum [IAS] → go to point 2/3.
2. Short, thickened, usually hypermobile FO valve, R → L unrestrictive DA flow, systolic velocity  $PT = A_o$  or  $PT > A_o$  → FO RESTRICTION.
3. Long FO valve bulging deeply into the left atrium:
  - a. DA L → R diastolic flow, systolic velocity  $PT_b$ . If in subsequent examinations the atrial septum excursion decreases or septum becomes hypermobile; end-systolic and/or diastolic L → R DA flow → increased pulmonary flow → RISK OF PPHN.
4. DA restriction/narrowing OR long lasting ( $\geq 5$  weeks) limited interatrial mixing → HIGH RISK OF PPHN.
5. Obligatory assessment every 1-2 week after 35 week of pregnancy.

Conclusions: Longitudinal assessment of fetal TGA hemodynamics seems to predict the newborn's condition with high accuracy and specificity, which is important in planning the perinatal period, especially in cases with suspected PPHN.