

Hypoxic myocardial injury in newborn infant- diagnosis and evolution

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PURPOSE:

to present the main aspects of perinatal myocardial injury and the utility of echocardiography for its diagnosis and follow up.

METHODS.

Patients: 82 newborns aged 0 to 14 days, with normal birth weight, with perinatal hypoxia (Apgar score 3 - 7), receiving resuscitation, but without major congenital heart diseases.

All cases were investigated by:

- **clinical exam ** ECG
- ** chest X-ray (Rx.CT),
- ** Doppler echocardiography (Echo).

Could not be investigated some cardiac biomarkers as CPK-MG and cardiac troponin.

Most of patients were evaluated clinically and echo after 6 months.

RESULTS.

⇒ The patients had mainly signs of neurological post hypoxic suffering, only 6 cases signs of severe heart suffering (cardiomegaly, respiratory distress, cyanosis, peripheral circulatory failure)

⇒ otherwise the cardiac exam revealed:
systolic murmur (64 cases)

signs of persistent pulmonary hypertension of newborn (PPHN) 7 cases.

⇒ Chest X-ray: cardiomegaly (31 cases-37,8%)

⇒ ECG: severe left ventricle (LV) repolarization disturbances and low voltage of QRS complexes (37 cases), without ischemic changes.

⇒ Doppler echo exam at 2-7 days of life revealed:

- ♦ the absence of other severe congenital cardiac anomaly;
- ♦ permeability of foramen ovalae (100%) and forced foramen ovalae (gradient LA/RA > 8 mmHg);
- ♦ mild to severe tricuspid insufficiency and RV and RA dilation (29 cases);
- ♦ sometimes right-left shunt through the FO
- ♦ myocardial hypertrophy (42 cases) mainly IVS (29 cases),
- ♦ signs of PPHN(6 cases);
- ♦ prolonged IVRT (35),
- ♦ increased myocardial performance index(44 cases) **
the systolic dysfunction in 5 cases and severe LV diastolic dysfunction in 45 cases.

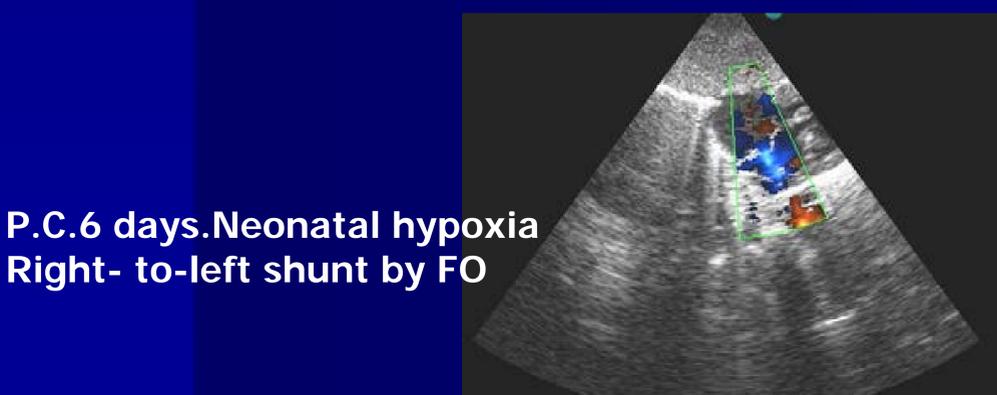
All the cases received spironolactone 1-2mg/kg/day for 3 months.

Reevaluation at 6 months showed the reduction of the myocardial hypertrophy and of tricuspid regurgitation, with a normal LV systolic and diastolic function.



C.M. 7 days. Neonatal hypoxia.

- A. Echo Doppler color: tricuspid regurgitation;
- B. Echo Doppler spectral: tricuspid regurgitation;



P.C.6 days. Neonatal hypoxia
Right- to-left shunt by FO



N.P. 7 days. Neonatal hypoxia

Hypertrophic cardiomyopathy

CONCLUSIONS.

The perinatal hypoxia can induce a important myocardial injury as hypoxic ischemic myocardopathy or transient post hypoxic hypertrophic cardiomyopathy at more than 62,2 % of patients, the signs of cardiovascular suffering missing often. Echo is the main method for diagnosis and follow up of perinatal hypoxic cardiomyopathy and is necessary performed from the first week of life. The research of cardiac biomarkers CPK-MB and cardiac troponin may amplify the value of cardiological investigation of hypoxic myocardial injury in newborn infant