ARTERIAL-VENTRICULAR COUPLING IN PRETERMS WITH PATENT DUCTUS ARTERIOSUS

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Aim of the study: To analyze arterial-ventricular coupling (AV-C) in a cohort of preterms before and after ductal closure.Patients and methods.

Inclusion criteria: Gestational age < 33+0, normal intracardiac anatomy, no coarctation , minimum stay in the NICU from day 1 to day 3 of life in the period from 11/2009 - 11/2010. Further criteria were complete M-mode (left atrium, left ventricle) and Doppler recordings (left pulmonary artery, descending aorta and PDA), Patients were stratified into 4 subgroups according to GA. PDA flow patterns were classified according to Skinner (PDA type 1-6). As a measure for AV-C the ratio of effective arterial elastance to left-ventricular endsystolic elastance (E_A/E_{LV}) was calculated based on M-mode derived volumes.

Results: The study cohort comprised of 79 patients (subgroup 1 (GA23+0-24+6) n=17, subgroup 2 (GA 25+0-26+6) n=29, subgroup 3 (GA 27+0-28+6) n=21, subgroup 4 GA29+0 -32+6) n=12). PDA types 5 and 6 were found in 41%, 28%, 24% and 8% of patients in subgroups 1,2,3, and 4 respectively. 67/79 patients with a PDA type 3-6 received ibuprofen, in 12 of them ductal clipping was required. Calculation of E_A/E_{LV} before and after ductal closure revealed the following ratios: Subgroup 1: 0.28 vs. 0.27, subgroup 2: 0.31 vs.0.35, subgroup 3: 0.45 vs.0.39 and subgroup 4: 0.51 vs. 0.33 .

Conclusion: Our preliminary data indicate that the effect of ductal closure on either E_A or E_{LV} or both depends on gestational age.