

of life (range 11–18 days). Wilcoxon signed rank-test was used to test for differences in cTnT between the different time-points.

Results Mean gestational age was 26.1 weeks (range 23.0–27.9) and mean birth weight 838 g (438–1287 g). At postnatal day 3, median cTnT was 148 ng/l (range 82–386). cTnT decreased between day 3 and day 7 to 96 ng/l (68–214) ($p < 0.001$). Between one and two weeks of age, cTnT again increased to 144 ng/l (95–338) ($p = 0.001$). Thirty-four infants (57%) were treated for a hemodynamically significant PDA (hsPDA) at a mean age of 8 days (SD 3.3). Twenty-three received only pharmacological treatment, 9 had surgery after pharmacological treatment and 2 had primary surgery. cTnT did not differ at any of the three time points between infants treated for hsPDA and infants not treated. Five infants who later died had significantly higher cTnT at 7 days of age than the 55 survivors (median 175 ng/l, compared to 94 ng/l) ($p = 0.01$).

Conclusion cTnT levels in extremely preterm infants are tenfold higher than reference values in adults. We did not find any relation between cTnT and need for PDA-treatment in this study.

PS-018 EVOLUTION OF SPECKLE TRACKING DERIVED 2-D STRAIN PARAMETERS IN VERY LOW BIRTH WEIGHT INFANTS WITH AND WITHOUT BRONCHOPULMONARY DYSPLASIA DURING THE NEONATAL PERIOD

¹C Czernik, ¹S Rhode, ²S Helfer, ¹G Schmalisch, ¹C Bührer, ²L Schmitz. ¹Department of Neonatology, Charité University Berlin, Berlin, Germany; ²Department of Pediatric Cardiology, Charité University Berlin, Berlin, Germany

10.1136/archdischild-2014-307384.314

Background and aims In preterm infants, postnatal myocardial adaptation may be influenced by bronchopulmonary dysplasia (BPD). We aimed to describe the development of left ventricular function by serial 2D-Doppler, and speckle tracking echocardiography (2D-STE) in infants with and without BPD during the neonatal period in comparison to anthropometric and conventional haemodynamic parameters.

Methods Prospective echocardiography on day of life (DOL) 1, 7, 14, and 28 in 119 preterm infants <1500 g birth weight, of whom 36 developed BPD (oxygen supplementation at 36 gestational weeks). Non-BPD and BPD infants differed significantly in median[IQR] gestational age (25.5[24–26.5] weeks vs. 29[27–30]weeks, $p < 0.001$) and birth weight (661[552–871]g vs. 1100 [890–1290]g, $p < 0.001$).

Results The rapid growth of length and body weight during the first 4 weeks of life was not matched by increased speckle tracking parameters. Infants with BPD differed significantly ($p < 0.001$) from those without BPD firstly, for all anthropometric parameters and conventional haemodynamic parameters except heart rate and secondly, for 2D-STE parameters global longitudinal systolic strain rate (GLSSR) and longitudinal systolic strain (LSSR) at the left free midwall segment. In infants with BPD, GLSSR ($p < 0.001$) and LSSR ($p < 0.01$) were significantly higher during the first week of life after which the differences disappeared. Low intra- and inter-observer variability was seen for longitudinal systolic strain and strain rate mid septum with a median coefficient of variation <4.6%.

Conclusions Reproducible 2D-STE measurements are possible in preterm infants <1500 g. There are early (DOL 1 and 7) ventricular changes (GLSSR and LSSR) in very low birth weight infants who develop BPD.

PS-019 CHILDHOOD CARDIAC OUTCOME OF TWIN-TWIN TRANSFUSION SYNDROME AFTER INTRAUTERINE LASER TREATMENT: AN ECHOCARDIOGRAPHIC STUDY OF VENTRICULAR FUNCTION

¹C Pegelow Halvorsen, ²LA Mohlkert, ²M Norman, ³SE Sonesson. ¹Clinical Science and Education, Karolinska Institutet, Stockholm, Sweden; ²Clinical Science Intervention and Technology, Karolinska Institutet, Stockholm, Sweden; ³Women's and Children's Health, Karolinska Institutet, Stockholm, Sweden

10.1136/archdischild-2014-307384.315

Background and aim Intrauterine laser treatment of placental vessels is used to alleviate abnormal circulatory load and cardiac morbidity affecting fetuses with twin-twin transfusion syndrome (TTTS). As the final cardiac outcome after such intervention is not known, we conducted this childhood follow-up study of cardiac function in twins treated with intrauterine laser for TTTS.

Methods and results Nineteen TTTS pairs (11 male, 8 female) with a mean age of 4.5 (range 1.1–9.9) years were assessed with echocardiography 2D, Doppler, DTI, 3D and speckle tracking, and compared with nineteen age- and gender-matched singletons.

Recipients had a lower left ventricular E/A ratio compared with their donor twins [1.48(0.35) vs. 1.66(0.28), $p < 0.05$] but not compared with singleton controls, and all but one observation were within normal reference limits. There was no significant difference in the right ventricular E/A ratio [1.26(0.28) vs. 1.41(0.28), $p = 0.06$], but recipients showed a slightly lower right ventricular e'a' ratio when DTI was used. TTTS twins had smaller longitudinal left and right ventricular dimensions than controls. Besides a marginally lower ventricular strain in donors compared with controls, speckle tracking could not demonstrate any group differences in systolic ventricular function.

Conclusion Despite significantly different fetal cardiac loading conditions, survivors of laser-treated TTTS show only minor within-pair differences in diastolic cardiac function at follow-up. Cardiac function in TTTS twins compare well to singleton controls, suggesting a favourable long-term outcome.

PS-020 CARDIAC FUNCTION IN NEWBORNS WITH FETAL GROWTH RESTRICTION: MORPHOLOGICAL AND FUNCTIONAL CHANGES

¹L Rodriguez Guerineau, ²M Perez Cruz, ¹FJ Cambra, ²O Gómez, ³J Carretero, ²MD Gomez Roig, ²F Crispi, ³J Bartrons. ¹Pediatric Intensive Care Unit, Hospital Sant Joan de Déu, Esplugues de Llobregat, Spain; ²Department of Obstetrics and Gynecology, Barcelona Center for Maternal Fetal and Neonatal Medicine Hospital Clínic and Hospital Sant Joan de Déu, Barcelona, Spain; ³Pediatric Cardiology, Hospital Sant Joan de Déu, Esplugues de Llobregat, Spain

10.1136/archdischild-2014-307384.316

Abstract PS-020 Table 1

Characteristics (n = 50)	FGR [#]	Controls [#]	p
Gestational age at birth (w = weeks + d = days)	37w + 6d (34w–40w)	39w + 4d (34w–41w)	0,001
Weight (kg)	2,23 (1,58–2,73)	3,24 (1,99–4,00)	<0,001
Right sphericity index	1,56 (1,11–2,28)	1,90 (1,53–2,46)	<0,001
Left sphericity index	1,63 (1,32–2,32)	1,98 (1,61–2,63)	<0,001

[#]Mean (Range).