criteria used were flow pattern in the descending aorta (12) and in the pulmonary artery (13), or any left-right shunt (9). Ductal diameter > 1.5 mm was used in 8 more recent trials, but in only one trial as solitary US criteria.

Conclusion: A large variation in HSDA definition exists. We should try reaching an international consensus on the definition of a HSDA, and evaluate if clinical signs are correlated with the mentioned US parameters or DAd.

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NOVEL ULTRASOUND DILUTION TECHNIQUE DETECTS LEFT-TO-RIGHT SHUNTS WITH HIGH ACCURACY IN CHILDREN

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Objectives: Recently introduced paediatric cardiac output monitor (COstatus, Transonic Systems Inc. Ithaca, NY) also measures blood volumes and detects cardiac shunts. The current study assessed its ability to identify left-to-right shunts and measured associated blood volumes during cardiac catheterisation in children.

Patients and Methods: Cardiac catheterisation was performed in 20 children and adolescents (3.5 kg- 102 kg). Shunts and pulmonary (Qp) versus systemic blood flow (Qs) ratio were determined by routine oximetry. Subsequently three measurements with COstatus were performed while the monitor software announces the recognition of left-to-right shunt. Dilutions curves were recorded and validated.

Results: Left-to-right shunts due to various types of cardiac defects were detected in 6 patients by oximetry. Applying COstatus diagnostic accuracy was very convincing, with a sensitivity of 100% (6/6) and a specificity of 92.8% (13/14). The threshold for determination a left-to-right shunt was an Qp/Qs ratio of 1.3. In one case of a hypertrophic obstructive cardiomyopathy the distortion of the dilution curve led to a false positive result. A significant difference was detected for means of central blood volume index between patients with left-to-right shunts and controls with no cardiac shunts (95% CI; 24.9 versus 18.2 ml/kg; P< 0.05).

Conclusion: Novel ultrasound dilution technique identifies left-to-right shunts in children with a high sensitivity and detects even small shunts with an Qp/Qs ratio of 1.3. Raised central blood volume index corresponds well with clinical features in patients with left-to-right shunts and may become helpful a diagnostic parameter in the future.

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ORAL VS INTRAVENOUS IBUPROFEN FOR TREATMENT OF PATENT DUCTUS ARTERIOSUS

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Background and aims: The aim is to evaluate and compare the efficacy and side effects of oral and intravenous(IV) ibuprofen for treatment of PDA in preterm infants.

Methods: A prospective, randomized controlled trial was conducted in premature neonates with gestational ages(GA) < 32weeks, birth weight(BW) < 1500g, at Ankara University NICU between January 2008 to January 2010. Infants who had defined symptoms for PDA together with echocardiographically demonstrated ductus and presymptomatic infants with a ductus diameter/ kg>1,5 or with a left atrium/aorta ratio>1,5 detected on routine echocardiogram in the 2nd day of life were included in the study. Three doses of either oral or IV ibuprofen were randomly given at a dosage of 10,5,5mg/kg every 24 hours. Daily physical examination, serial laboratory evaluation and echocardiogram were used to evaluate symptomatic PDA, treatment outcomes, complications and side effects.

Results: Thirty-three infants were recruited during two years period and randomly assigned into the groups. Twenty of them received IV ibuprofen. The GA, BW, presence of antenatal corticosteroid, APGAR scores, use of surfactant, ductus diameters, La/Ao ratio of the two groups were similar. Closure, reopening and need for surgical ligation didn't differ between groups. There were no significant difference in the prevalence of NEC, renal dysfunction and mortality between two groups.

Conclusions: In this study oral ibuprofen is shown to be as effective as IV form for the treatment of PDA, with similar side effects. Considering the cost and availability of IV form, it can be the drug of choice.

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ACCURACY AND PRECISION OF A NEW METHOD FOR HEMODYNAMIC ASSESSMENT IN CHILDREN UNDERGOING CARDIAC SURGERY BASED ON ULTRASOUND DILUTION METHODOLOGY

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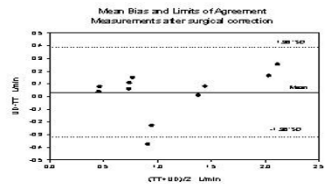
Background and aims: This novel monitor (*COstatus*, Transonic Systems Inc., Ithaca, NY) uses existent intravascular lines for injections of isotonic saline to measure CO and BV (blood volume) by ultrasound dilution methodology. It can also identify the presence of cardiac shunts. We investigated the accuracy and precision of the method during pediatric congenital heart surgery (CHS).

Methods: 9 pts scheduled for CHS [age 8 (0-39) months; weight 7.6 (3.2 - 14.1) kg] were included. Measurements (2-4 injections of saline 0.5-1 mL/kg /session) started in the OR, before/immediately after CPB and then repeated in PICU at 2, 3, 4, 5, 6, 12 and 24 h after weaning. Accuracy was tested in the OR using transit time technology (TT).

Results: 56 measurement-sessions were performed. In 5 pts, during stable hemodynamic conditions, TT was simultaneously obtained (Fig 1). We identified left-to-right shunts in 12 sessions. The coefficient of variation (CV= SD/mean) was calculated for CO, central BV index (CBVI), total end-diastolic volume index (TEDVI), and active circulation volume index (ACVI) in each session.

Parameters	CO	CBVI	TEDVI	ACVI
CV - NO shunts	3.8%	3.2%	3.1%	7.1%
CV - With shunts	15%	12%	10%	9.6%

[Precision analysis]



[Accuracy]

Conclusions: *COStatus* offers reproducible measurements in pediatric patients. It does not require insertion of dedicated catheters. In the absence of shunts, two injections are typically adequate for data collection; in the presence of shunts, more injections may be required.

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A LOW PLATELET COUNT IS ASSOCIATED WITH TREATMENT FAILUREIN PRETERM INFANTS TREATED WITH IBUPROFEN FOR PATENT DUCTUS ARTERIOSUS (PDA)

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Background: Recent studies have demonstrated that platelet count (PLTc) and function have an important role in promoting spontaneous closure of the PDA in animal models.Aimto evaluate whether response to ibuprofen in premature infants with PDA is influenced by PLTc.

Methods: All infants with GA ≤ 28wks born in our unit between 1/1/2007 and 31/12/2009 were retrospectively studied. Exclusion criteria were: congenital malformations, death within 48 hrs and outborn. All infants had echocardiographic evaluation in 1st DoL. Patients with a hemodynamically significant PDA (HsPDA) were treated with a standard course of ibuprofen. GA, BW, antenatal steroids, gender, type of ventilatory support were analyzed along with PLTc before and after treatment. Associations with HsPDA and treatment response were assessed by univariate and multivariate analysis.