PO-0501 GLIBENCLAMIDE CLOSES NEONATAL DUCTUS ARTERIOSUS IN RATS

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Background Treatment for patent ductus arteriosus (PDA) in premature infants may fail following perinatal indomethacin exposure. Glibenclamide, a sulfonylurea, constricts the fetal rabbit ductus *in vitro*, and fetal rat ductus *in vivo*. Clinical doses for diabetes include 0.1 mg/kg (adults) and 1 mg/kg (children with neonatal diabetes).

Aims To show ductus constriction acceleration with Glibenclamide in newborn rats as a model of treatment for premature PDA.

Methods Glibenclamide (1 mg/Kg) was injected intraperitoneally (IP) to newborn Wistar rats immediately after cesarian section, and the ductus diameter was studied at 60 min with rapid whole-body freezing, by cutting on a freezing microtome, and measurements performed on a microscope using a micrometre. Two near-term rat models were studied on the 21st day. In a chronic fetal indomethacin-exposure model, mother rats were treated with indomethacin (10 mg/kg, gavage) for two days before birth. In a hypoxia model, neonates were incubated in 8% oxygen. In a premature model, rats were delivered on the 19th day (two days before term) and incubated in 80% oxygen.

Results In these three models, neonatal ductus constricted slowly. Glibenclamide 1 mg/kg, caused accelerated constriction and the effects were dose-dependent. Glibenclamide (1mg/kg, IP) was associated with hypoglycemia, which was controlled with 50% glucose via gavage.

Conclusions Glibenclamide (1 mg/kg, IP) constricts the neonatal ductus in 60 min in three rat models. Hypoglycemia was controlled with glucose, indicating its usefulness in the treatment of PDA in premature infants.

PO-0502 CONGENITAL HEART DISEASE AT MATERNIDADE JÚLIO DINIS 2012–2013

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Background/aim Congenital heart disease (CHD) is the most common congenital disorder in newborns (prevalence ranges from 6 to 13 per 1000 live births). Transversal study of the newborns diagnosed with CHD at Maternidade Júlio Dinis between 2012–2013.

Methods Patients were identified by searching the hospital's electronic discharge records of the ICD-9 for each CHD (745.0–747.11). The following data were analysed: gender; gestational age; birth weight; pregnancy and delivery type; need of resuscitation; family history and maternal conditions that increase the risk for CHD; echocardiography reason and source of referral; clinical manifestations; paediatric cardiology agreement on the diagnosis; treatment and follow-up.

Results A total of 161 patients were documented, corresponding 24,8% to preterm newborns. The prevalence of echocardiographic findings was 26,8 per 1000 live births. At birth, resuscitation was needed in 20,5% patients. Cardiovascular findings

suggestive of CHD were the reason to request echocardiogram in 75,8% cases and prenatal suspicion was responsible for 19,9%. Ventricular septal defect was the most prevalent (53,4%) CHD. Complex heart defects were found in 6,8% patients. A total of 101 patients were referred to paediatric cardiology and the concordance in diagnosis was around 99%. Surgical repair was performed in 5,6% patients. During this 2 years period, mortality related to CHD was 0,67 per 1000 infants (< 1 year age).

Conclusion This portuguese CHD study shows a high prevalence of these disorders. Congenital heart defects are common conditions that have significant impact on morbidity, mortality and healthcare costs. A multidisciplinary team able to detect most of them in the neonatal period is crucial to minimise it.

PO-0503 TEN YEAR STUDY OF PREVALENCE AND DIAGNOSIS OF CONGENITAL HEART DISEASE (CHD) IN AN ASIAN COUNTRY: IMPLICATIONS ON ANTENATAL DIAGNOSIS AND NEWBORN SCREENING

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Rationale Congenital heart disease (CHD) constitutes a significant proportion of birth defects and is a leading cause of mortality. Current literature regarding the local prevalence of CHD and timeliness of diagnosis is not available.

Objective This study aims to determine the live birth prevalence of CHDs in Singapore General Hospital (SGH), the antenatal diagnosis rate, and the proportion of CHD patients diagnosed after discharge from the SGH neonatal unit.

Methods This was a retrospective observational study. All live-births at SGH from January 2003 to December 2012 diagnosed with CHDs according to the hospital's birth defect register were

Abstract PO-0503 Table 1 CHD prevalence

BPA Classification	Congenital heart defect	Frequency (n=59)	Percentage of all CHD (%)
745.10	TGA	1	0.7
745.20	TOF	3	2.0
745.40	VSD	82	54.7
745.09	AVSD	3	2.0
745.90	Unspecified defect of septal closure	1	0.7
746.00	Pulmonary valve anomaly, unspecified	2	1.3
746.01	Pulmonary atresia	1	0.7
746.02	Pulmonary stenosis	27	18
746.09	Other pulmonary valve defect	1	0.7
746.30	Congenital stenosis of aortic valve	1	0.7
746.00	Congenital mitral insufficiency	1	0.7
746.70	Hypoplastic left heart	1	0.7
746.87	Dextrocardia	3	2.0
746.90	Unspecified anomaly of heart	10	6.7
747.10	Coarctation of aorta	3	2.0
747.21	Anomalies of aortic arch	1	0.7
747.30	Anomalies of pulmonary artery	4	2.7
747.41	TAPVD	2	1.3
747.49	Other anomalies of great veins	1	0.7
747.90	Unspecified anomaly of circulatory system	2	1.3

Abstract PO-0503 Table 2 CHD cases diagnosed after discharge from neonatal unit

BPA	CHD	Freq (n=43)
745.4	VSD	13 (30.2)
745.9	Unspecified defect of septal closure	1 (2.3)
746.0	Pulmonary valve anomaly, unspecified	1 (2.3)
746.02	Pulmonary stenosis	18 (41.9)
746.3	Congenital stenosis of aortic valve	1 (2.3)
746.6	Congenital mitral insufficiency	1 (2.3)
746.9	Unspecified anomaly of heart	5 (11.6)
747.1	Coarctation of aorta	1 (2.3)
747.3	Anomalies of pulmonary artery	2 (4.7)

included. All patients born in SGH within the same time-frame who were diagnosed with CHD in KK Women's and Children's Hospital (the largest Paediatric tertiary hospital locally) after discharge from SGH were also included.

Results From Jan 2003 to Dec 2012, out of 16,171 live-births at SGH, 259 patients were diagnosed with CHD. After excluding 63 cases of PDA, 44 cases of PFO and 2 cases of PFC, 150 patients were left for analysis. Overall live-birth prevalence was 9.3 per 1000 live-births.

Prevalence of CHD as outlined in Table 1.

Overall antenatal detection rate was 5.3%

There was significant variation in antenatal detection rate among CHDs. Whilst antenatal detection of certain life-threatening CHDs (hypoplastic left heart, transposition of great arteries and pulmonary atresia) was high, that for TAPVD and coarctation of aorta was much poorer.

A significant proportion of CHD was diagnosed after being discharged from SGH (28.7%)-table 3. One with coarctation presented in extremis in KKH Children Emergency after discharge from SGH.

Discussion/ conclusions The above results are comparable with that reported elsewhere^{2-5, 16-17}.

More can be done to improve the antenatal detection of certain life threatening CHDs, and to detect more cases before discharge from the neonatal unit.

PO-0504 WHAT IS THE EFFICACY OF IBUPROFEN IN PDA IN PRETERM BABIES OVER ONE WEEK OF AGE?

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Background Ibuprofen is currently the only intravenous drug for treating patent ductus arteriosus (PDA). Most efficacy data relates to preterm infants within the first week of life. Currently there is a trend in the literature advocating 'late symptomatic' treatment, therefore treatment is often commenced after the first week of life which may affect efficacy, as suggested by previous pharmacokinetic studies.

Aim Assess the efficacy of ibuprofen in PDA closure in preterm infants (<28 weeks) when treatment was commenced after the first week of life.

Abstract PO-0504 Figure 1 Flow diagram demonstrating the efficacy of ibuprofen using the various criteria

Methods Retrospective review over 3 years of patients treated with ibuprofen at a tertiary neonatal unit. Four outcome measures were used; A no further treatment required, B no longer haemodynamically significant, C diameter <1.5 mm, D closed/no flow on echocardiography.

Results 21 patients were identified retrospectively with (male: female 14:7) mean gestational age 25+3(24+1-27+1)days, mean birth weight 763(520-1060)g. 57% received one course, 38% 2 courses, 5% 3 courses, and 33% underwent PDA ligation. The complication rate was 9.4% following the 1st course and 14% following the 2nd course.

The efficacy of ibuprofen varied depending on the outcome criteria (5-47% following the 1st course, 14-43% after the 2nd course).

Conclusion There is wide variation in efficacy depending on the outcome measure used. When using echocardiographic criteria (B-D), the efficacy of the first and second courses was up to 16% and 29%, respectively. Further trials are needed to standardise the assessment of efficacy and defining the treatment failure rate when ibuprofen is commenced after the first week of life in preterm infants.

PO-0505 CONTINUOUS INVASIVE BLOOD PRESSURE IS DIRECTLY RELATED TO EEG MEASURES OF CONTINUITY IN EXTREMELY PRETERM INFANTS IN THE FIRST THREE DAYS OF LIFE

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Background and aims Electroencephalographic (EEG) activity may be affected by changes in cerebral perfusion in extremely preterm infants¹ so that a reduction in cerebral perfusion may be associated with reduced electrocortical activity. The relationship between invasively measured BP and EEG activity in this group remains to be determined. We hypothesised that systemic BP and

Abstract PO-0505 Table 1

	Day 1 of life (n=15)			Day 3 of life (n=12)		
	% Min amplitude < 5 µV (P5)	Upper aEEG margin (median µV)	Lower aEEG margin (median µV)	% Min amplitude < 5 µV (P5)	Upper aEEG margin (median µV)	Lower aEEG margin (median µV)
Median (range)	93% (77-99)	11.1 (9.8-14.3)	3.0 (2.3-3.8)	85% (78-94)	12.8 (8.3-13.7)	3.4 (2.6-3.8)
Correlation coefficients (Spearman's rho) between EEG measure and independent variable (*p<0.05, **p<0.01)						
Gestation	-0.69**	0.66**	0.60**	0.20	-0.22	-0.40
LVO	-0.07	0.16	0.07	-0.004	0.08	0.19
RCCA flow	-0.20	0.20	0.08	0.07	0.00	-0.13
Blood pressure	-0.79**	0.83**	0.78**	-0.74**	0.76**	0.63*