PARALLEL SESSION 2 - LUNG 1

ID 50. THE EFFECTS OF MEAN PLATELET VOLUME, NUCLEATED RED BLOOD CELLS AND RIGHT VENTRICULAR SYSTOLIC PRESSURE ON PREDICTION OF SEVERITY OF TRANSIENT TACHYPNEA OF THE NEWBORN

Doctor Yusuf Çelik[1], **Doctor Dilek Kahvecioğlu[2]**, Assoc. Prof. İbrahim Ece[3], Doctor Fatih Atik[3], Doctor Aslıhan Köse Çetinkaya[2], Prof. Medine Ayşin Taşar[1]

[1]University of Health Sciences, Ankara Training and Research Hospital, Department of Pediatrics, Ankara, Turkey, [2]University of Health Sciences, Ankara Training and Research Hospital, Department of Pediatrics, Neonatal Intensive Care Unit, Ankara, Turkey, [3]University of Health Sciences, Ankara Training And Research Hospital, Department of Pediatrics, Pediatric Cardiology , Ankara, Turkey

Background: Transient tachypnea of the newborn (TTN) is a common clinical problem that often occurs in the first hours after birth. Although it is considered to be a benign clinical course, some cases may have severe symptoms and require ventilation support. In this study, we aimed to determine the association between the mean platelet volume (MPV), nucleated red blood cell (nRBC), right ventricular systolic pressure (RVSP) and the severity of TTN.

Methods: Patients with TTN were divided into two groups according to Silverman score (<7:group 1[n:34] and ≥7: Group 2 [n:30]). The groups were compared in terms of demographic characteristics, hematologic parametres and RVSP within the first 24 hours after admission.

Results: Mean birth weight of the patients were 3033.4±364.1 grams and median gestational age were 38 weeks (min-max 34-42). The rate of C/S was found to be higher (p=0,015) and APGAR scores at 1th and 5th minutes (p=0,001, p=0,003 respectively) were lower in Group 2. The comparision of respiratory findings were mentioned in table 1. In terms of hematologic parametres; Group 2 had significantly higher thrombocyte, haemoglobin, hematocrit and nRBC levels (p<0,05). RVSP were found to be higher in Group 2 (p:0,001). In logistic regression analysis, nRBC was found to be the most important independent parameter affects Silverman score at admission (OR:7,065, CI:1,258-39,670,p:0,026).

Conclusion: This is the first study that investigates the effects of nRBC and RVSP on severity of TTN. It shows that patients with high nRBC and RVSP values may have poor prognosis, require longer ventilation support and longer duration of hospitalization.

	Group-1 (n=34) Silverman score<7	Group-2 (n=30) Silverman score≥7	p
Respiratory rate at admission[+]	64 (60-78)	68 (62-88)	0,003
Downe's score at admission[+]	4 (2-7)	7 (7-10)	0,001
Downe's score at 24th hour[+]	1 (0-3)	3 (1-10)	0,001
Silverman score at 24th hour[+]	1 (0-3)	3 (1-9)	0,001

Oxygen free saturation at admission[+]	93 (84-98)	90 (81-94)	0,001
Duration of hospitalization[+]	3 (1-8)	6 (2-15)	0,001
Respiratory Support (n) Hood nCPAP nSIMV SIMV	25 9 0 0	3 17 7 3	0,001
Duration of oxygen treatment [+]	2 (1-5)	4 (1-14)	0,001

+ Median (min-max)

Table 1. The comparison of respiratory findings
Table 1. The comparison of respiratory findings
None declared

ID 85. CONGENITAL DIAPHRAGMATIC HERNIA OUTCOMES IN A POPULATION WITH A HIGH INCIDENCE OF ASSOCIATED ANOMALIES

Dr. Moath Alhamad[1], Dr. Dhullipala Anand[1]
[1]Sidra Medicine, Doha, Qatar

Background: Congenital diaphragmatic hernia (CDH) is a complex congenital condition with significant morbidity and mortality. The morbidity and mortality are increased when CDH is associated with other anomalies. Reported survival varies between centers but is mostly around 70%. The rates of termination of pregnancy (TOP), however, are high in many of these centers, especially for pregnancies with CDH and other anomalies. In this study, we report the outcomes of a population of CDH infants with a high incidence of associated anomalies but a low rate of TOP, and we compare these outcomes to published literature.

Methods: The data from CDH-Qatar (CDH-Q) registry (established as a part of CDH-Q program at Sidra Medicine), between April 2018 and December 2020, was compared to the published data by the CDH study group (CDHSG), the European Surveillance of congenital anomalies (EUROCAT), Florida Birth Defects Registry, and other centers.

Results: During the study period, 35 infants with CDH were treated at Sidra Medicine, with a median birth gestational age of 38 weeks (IQR 36-39) and Birth Weight of 2.78 kg (IQR 2.22-3.17). 27 infants (77%) were inborn, and 30 infants (86%) were diagnosed prenatally. None of the prenatally diagnosed cases resulted in TOP. A unique aspect of CDH-Q is the high rates of infants with associated congenital heart disease (23%), genetic abnormalities (26%), and major congenital anomalies (46%), as these rates are higher than what was reported in literature. Despite that, CDH-Q survival rates are similar to those reported in literature: Overall survival to home discharge is 69%, with higher survival among infants who were actively resuscitated at birth (73%), infants who underwent surgical repair (80%), and infants with isolated CDH (79%).

Conclusion: To our knowledge, CDH-Q is the first and only dedicated program for treatment of CDH in the Middle East. Considering the unique patient population with low incidence of TOP and higher incidence of genetic and congenital anomalies, the outcomes of CDH-Q are similar to published literature. Establishing a CDH registry for the Middle East would be beneficial to study and compare the characteristics and outcomes of CDH in this unique patient population.
None declared

ID 366. Respiratory system reactance at 36 weeks post-menstrual age as a marker of lung disease in very preterm infants

Doctor Emanuela Zannin[1], Doctor Camilla Rigotti[1], Doctor Roland Neumann[2], Professor Raffaele Dellacà[3], Professor Sven Schulzke[2], Maria Luisa Ventura[1]

[1]*Fondazione Monza E Brianza Per Il Bambino E La Sua Mamma, Monza, Italy,* [2]*University Children's Hospital Basel UKBB, Basel, Switzerland,* [3]*Politecnico di Milano, Milano, Italy*

BACKGROUND
Bronchopulmonary dysplasia (BPD) is the most common morbidity of preterm birth and is associated with respiratory problems that can persist into adulthood. Functional markers of lung disease would facilitate the evaluation of clinical interventions and outcome prediction. This study aimed to evaluate whether lung mechanics assessed non-invasively by the forced oscillation technique (FOT) would be associated with the severity of lung disease in very preterm infants at 36 weeks of post-menstrual age (PMA).

METHODS
We studied infants below 32 weeks' gestation at 36 weeks PMA. We applied FOT using a mechanical ventilator (Fabian HFOi, Vyaire) that superimposed small amplitude oscillations (10 Hz) on a continuous positive airway pressure (5 cmH2O), and we computed respiratory system reactance (Xrs) from the flow and pressure signals measured at the airways opening. We compared Xrs between BPD groups (classified according to the 2001 National Institute of Health definition) using one-way ANOVA on ranks. We assessed the association between Xrs and the total duration of respiratory support by linear regression.

RESULTS
49 infants were measured (median (IQR) GA = 29.6 (28.2, 31.0) weeks, birth weight 1170 (993, 1530) g). 38 (78%) infants were classified as no BPD, 5 (10%) as mild BPD, and 6 (12%) as moderate-severe BPD. Xrs was significantly lower in infants with moderate-severe BPD than in infants without BPD (Figure 1), indicating reduced respiratory system compliance. Xrs presented a statistically significant negative association with the total duration of respiratory support, which persisted after adjusting for gestational age, postnatal age, weight z-score and sex.

CONCLUSION
FOT is a non-invasive bedside tool for lung function testing that has the potential to provide physiological markers of lung disease. Indeed, Xrs measured at 36 weeks PMA reflects the severity of lung disease.
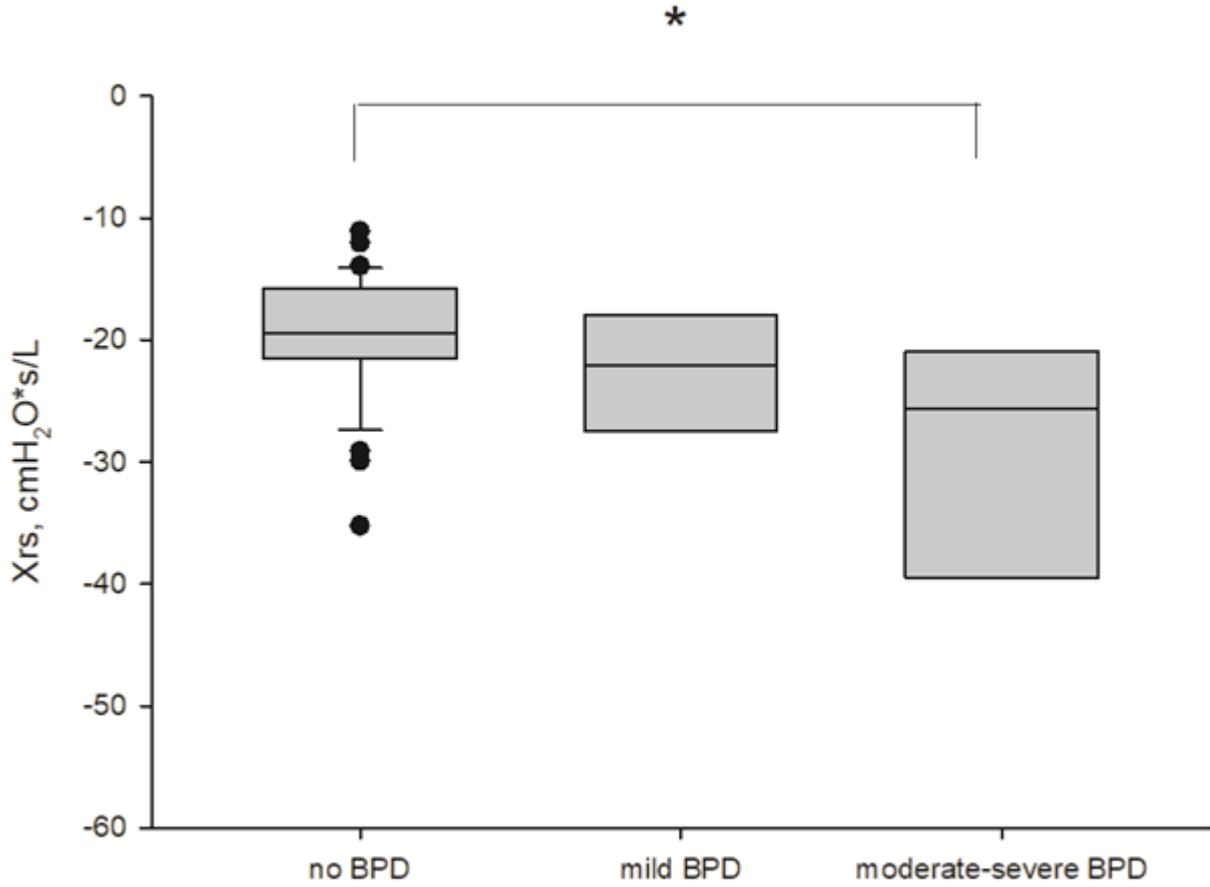
Figure 1: Respiratory system reactance (Xrs) in infants with no, mild and moderate-severe BPD. *: p < 0.05 vs no BPD.

Figure 1: Respiratory system reactance (Xrs) in infants with no, mild and moderate-severe BPD. *: p < 0.05 vs no BPD.

ID 386. DURATION OF INVASIVE MECHANICAL VENTILATION HAS SMALL INFLUENCE ON DIAPHRAGMATIC GROWTH IN PRETERM INFANTS

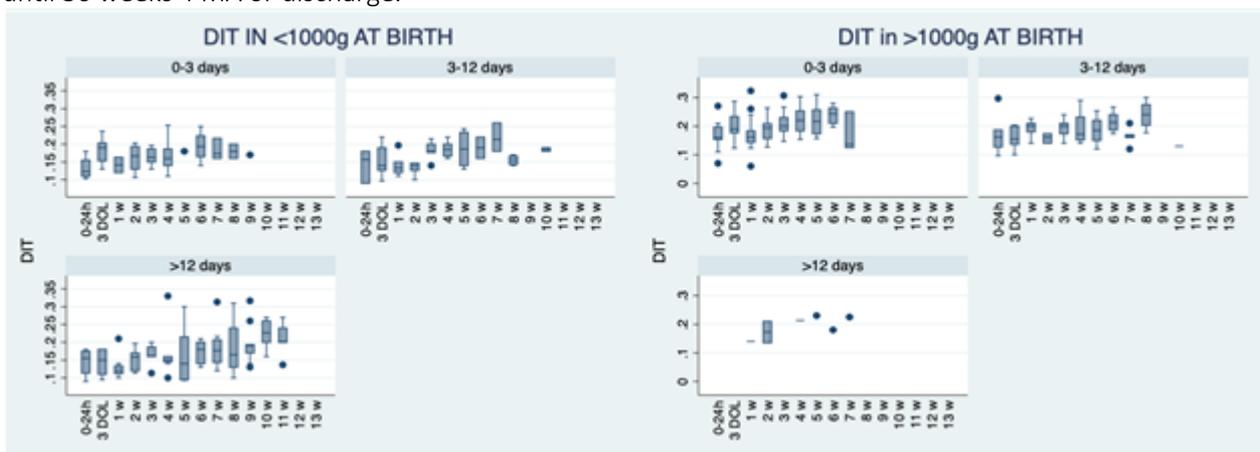Doctor Almudena Alonso-Ojembarrena[1], Mrs. Julia Rodriguez-Medina[2], Mrs. Alicia Morales-Navarro[2], Dr. Blanca González-Haba Martínez[1]

[1]Puerta Del Mar University Hospital, Cádiz, Spain, [2]University of Cádiz, Cádiz, Spain

BACKGROUND: Diaphragm shortening fraction (DSF) has been used to predict extubation failure and diaphragm disfunction in adults and children. However, the influence of invasive mechanical ventilation (IMV) in this measure has been poorly studied in preterm infants.

METHODS: We conducted an observational study including preterm infants born before 32 weeks (PT32w), with DU at birth, three days of life (DOL), and weekly until 36 weeks' postmenstrual age (PMA) or discharge. We excluded infants with major malformations or chromosomopathies. We measured diaphragm inspiratory and expiratory thickness (DIT and DET) and shortening fraction (DSF) in the apposition zone of the left side of the thorax. As the main variable that influences diaphragm growth is birth weight, patients were divided in two groups: less or higher than 1000g; and in three groups according to the duration of IMV: 0-3 days, 3-12 days or >12days (P25, P50 and P75 in our sample). We compared DIT, DET and SF between groups using ANOVA, and we also calculated a multilevel mixed-effects regression model to predict the three measures' evolution on time, using birth weight and IMV days as effect modifying variables.

RESULTS: One hundred and eighteen patients were included: 53 (45%) weighted less than 1000g at birth. Fifty-six (47%) had less than 3 IMV days, 20 (17%) 3-12 days and 42 (36%) more than 12 days. DIT differences were not significative at any time point using ANOVA (figure 1). However, birth weight and IMV days were related to DIT and DET change on time according to multilevel mixed-effects (p<0.001 for both). On the other hand, DSF didn't change throughout the duration of the study in any group.

CONCLUSION: Days of IMV influence the DIT and DET growth in PT32w since birth until 36 weeks' PMA or discharge, but the main variable related to diaphragm grow is birth weight. DSF does not change since birth until 36 weeks' PMA or discharge.

Diaphragm inspiratory thickness evolution on time in preterm infants born before 32 weeks, according to birth weight and days on invasive mechanical ventilation.

Diaphragm inspiratory thickness evolution on time in preterm infants born before 32 weeks, according to birth weight and days on invasive mechanical ventilation.
None declared