

# EP09.42 Pulmonary arterial change in the fetuses with congenital lung lesions

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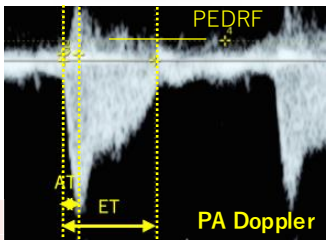
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There was no COI to disclose in this study.

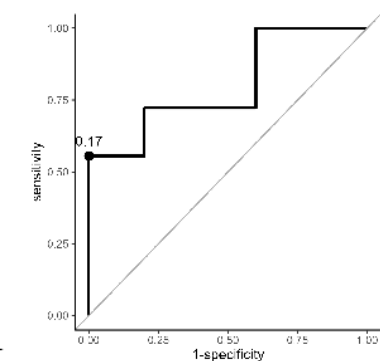
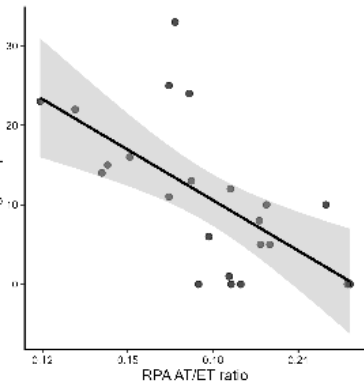
**Objective:** To identify the utility of pulmonary arterial Doppler parameters in the fetuses with congenital lung lesions

**Methods:** This retrospective cohort study involved examining medical records and fetal echocardiography data from 2016 to 2024 for fetuses diagnosed with congenital diaphragmatic hernia (CDH), congenital pulmonary airway malformation (CPAM), and severe oligohydramnios (Oli). Pulmonary artery (PA) Doppler parameters (AT/ET, PI, PEDRF) along with PA size were gathered, and the perinatal outcomes were assessed for each condition.



## CDH

|                 | iNO use       |               |         |
|-----------------|---------------|---------------|---------|
|                 | no (7)        | yes (24)      | P value |
| GA_scan (weeks) | 36.06 (1.64)  | 35.67 (2.07)  | 0.653   |
| o/e LHR         | 53.19 (18.20) | 40.26 (15.22) | 0.077   |
| RPA (mm)        | 3.77 (0.82)   | 3.28 (0.89)   | 0.203   |
| LPA (mm)        | 2.69 (0.70)   | 2.57 (0.66)   | 0.689   |
| RPA_AT/ET       | 0.20 (0.02)   | 0.16 (0.03)   | 0.016   |
| RPA_PEDRF       | 20.91 (4.90)  | 22.96 (6.57)  | 0.458   |
| RPA_PI          | 2.92 (0.73)   | 3.02 (0.74)   | 0.779   |
| MCA_PI          | 1.59 (0.24)   | 1.66 (0.35)   | 0.628   |
| MCA_PSV         | 51.75 (9.24)  | 52.97 (11.07) | 0.793   |
| UmA_PI          | 0.92 (0.11)   | 0.95 (0.18)   | 0.69    |
| AFI (cm)        | 15.93 (5.55)  | 18.81 (6.03)  | 0.271   |
| liver up (%)    | 1 (14.3)      | 11 (45.8)     | 0.286   |



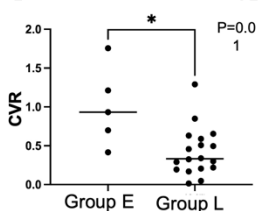
AUC: 0.84  
Optimal cut-off: 0.17  
(sensitivity: 0.56, specificity: 1)

## CPAM

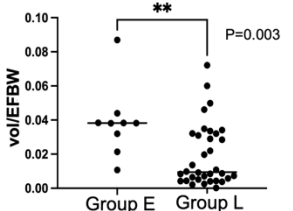
Postnatal early operation ( $\leq 40$  days)=Group E,  
late operation= Group L

|                     | Group E (n=9)      | Group L (n=34)     | p    |
|---------------------|--------------------|--------------------|------|
| Maternal age (year) | 28.8 ( $\pm 5.3$ ) | 29.8 ( $\pm 6.0$ ) | 0.63 |
| Para (number)       | 0 (0-2)            | 0 (0-2)            | 0.53 |
| Delivery (GW)       | 39.3 (37-40.3)     | 39.0 (37.1-41.1)   | 0.53 |
| Neonatal weight (g) | 2952 ( $\pm 304$ ) | 2984 ( $\pm 320$ ) | 0.79 |
| Apgar score 1 min   | 8 (4-9)            | 9 (7-10)           | 0.02 |
| Apgar score 5 min   | 9 (8-10)           | 9 (8-10)           | 0.08 |
| Diagnosis (GW)      | 23.4 ( $\pm 2.7$ ) | 24.7 ( $\pm 3.4$ ) | 0.32 |
| CVR max (GW)        | 27.5 ( $\pm 3.2$ ) | 27.0 ( $\pm 4.0$ ) | 0.75 |

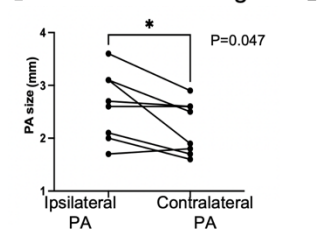
### 【CVR before delivery】



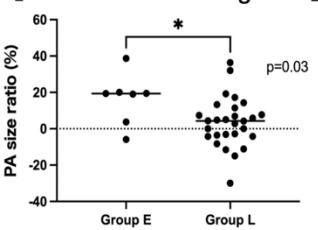
### 【vol/EFBW at diagnosis】



### 【PA diameter at diagnosis】

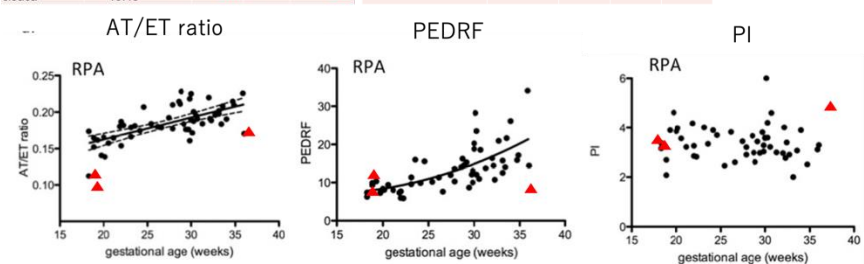


### 【PA size ratio at diagnosis】



## Oligohydramnios

|                | GA at the RPA scan (w) (mm) | RPA z-score | LPA (mm) | LPA z-score |       | GA at the scan (w) | AT/ET | PEDRF | PI    |      |
|----------------|-----------------------------|-------------|----------|-------------|-------|--------------------|-------|-------|-------|------|
| renal agenesis | 19.57                       | 1.4         | -1.76    | 1.3         | -1.58 | renal agenesis     | 19.57 | 0.093 | 12.04 | 3.2  |
| cloaca         | 36.57                       | 2           | -4.05    | 1.8         | -3.84 | cloaca             | 36.57 | 0.168 | 8.05  | 4.72 |
| cloaca         | 19.43                       | 1.2         | -2.57    | 1.1         | -2.39 | cloaca             | 19.43 | 0.118 | 8.31  | 3.51 |



## In summary

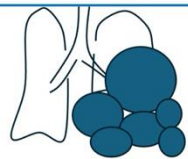
Congenital diaphragmatic hernia (CDH)



- Smaller AT/ET ratio with iNO use

Compression → lung hypoplasia (+)

Congenital pulmonary airway malformation (CPAM)



- PA size increase on the affected side at diagnosis
- No Doppler changes

Mass effect → lung hypoplasia (-)

Severe oligohydramnios (Oli)



- Small PA sizes on both sides
- Smaller AT/ET ratio
- Slightly higher PI

Lung growth → lung hypoplasia (+)