MARKERS OF EXTRACELLULAR MATRIX AND EPITHELIAL CELL MATURATION AFTER FETAL TRACHEAL OCCLUSION IN NEWBORN RABBITS WITH LUNG HYPOPLASIA INDUCED BY DIAPHRAGMATIC HERNIA

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Aim: To assess the effects of tracheal occlusion (TO) on pulmonary myofibroblast and matrix markers, TGF-ß superfamily, and epithelial maturation in a newborn model of diaphragmatic hernia (CDH).

Methods: On day 23/31, rabbit fetuses were randomized to CDH or SHAM thoracotomy. On day 28/31, the same fetuses randomly underwent TO or SHAM-TO. After ventilation at term, lungs were harvested for RTq-PCR. Non-operated littermates served as controls. Gene expressions in left lungs were expressed as fold induction relative to controls.

Results: TO increased significantly LBWR in CDH and SHAM-CDH animals. Data as mean±SD. Difference with CDH-SHAM TO (*) or SHAM CDH-SHAM TO ($^{+}$) for $p< 0.05$ (Kruskal-Wallis or one-way ANOVA).

	CDH-TO	CDH-SHAM TO	SHAM CDH-TO	SHAM CDH-SHAM TO
ELN	3.59±2.74*,+	0.63±0.23	4.63±3.44*,+	0.75±0.25
COL1A1	2.32±0.65*,+	1.29±0.69	2.25±0.69*,+	1.15±0.24
DBN1	1.42±0.53*	0.67±0.22	1.57±0.66*	0.95±0.21
α-SMA	2.57±0.76*	0.87±0.37	3.29±1.57*	0.98±0.23
TGF-ß1	1.43±0.36	0.91±0.33	1.70±0.43*,+	1.06±0.30
TGF-ß2	1.36±0.41*,+	0.72±0.21	1.44±0.48*,+	0.96±0.14
Cav-1	1.68±0.63*	0.89±0.47	2.28±0.88*,+	1.07±0.33
SP-A	0.92±0.79	1.76±0.87	1.02±0.71	1.24±0.50
SP-B	1.0±0.63	1.47±0.45	0.93±0.52	1.17±0.33

[Partial RTq-PCR results]

Conclusion: TO enhanced transcription of markers of myofibroblast and alveolar type II cell differentiation, together with an overexpression of TGF-ß isoforms. These data suggest that TO might induce matrix formation and tends to inhibit surfactant synthesis under the action of TGF-ß.