

The newborn sheep translational model for pulmonary arterial hypertension of the neonate at high altitude

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Abstract

Chronic hypoxia during gestation induces greater occurrence of perinatal complications such as intrauterine growth restriction, fetal hypoxia, newborn asphyxia, and respiratory distress, among others. This condition may also cause a failure in the transition of the fetal to neonatal circulation, inducing pulmonary arterial hypertension of the neonate (PAHN), a syndrome that involves pulmonary vascular dysfunction, increased vasoconstrictor tone and pathological remodeling. As this syndrome has a relatively low prevalence in lowlands (similar to 7 per 1000 live births) and very little is known about its prevalence and clinical evolution in highlands (above 2500 meters), our understanding is very limited. Therefore, studies on appropriate animal models have been crucial to comprehend the mechanisms underlying this pathology. Considering the strengths and weaknesses of any animal model of human disease is fundamental to achieve an effective and meaningful translation to clinical practice. The sheep model has been used to study the normal and abnormal cardiovascular development of the fetus and the neonate for almost a century. The aim of this review is to highlight the advances in our knowledge on the programming of cardiopulmonary function with the use of high-altitude newborn sheep as a translational model of PAHN.

Palabras clave

Palabras clave de autor: [Hypoxia](#); [hypobaria](#); [epigenetics](#); [high altitude](#); [DOHaD](#)

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