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Seminars in fetal and neonatal medicine delivery room emergencies

The few minutes that precede and follow birth are some of the most drastic and significant in terms of changes in physiology and possible lifelong consequences. Within a few seconds, the newborn has to shift from a state in which gas exchange occurs exclusively at the placenta, to the extra uterine environment where survival becomes entirely dependent on its own cardiorespiratory system. This requires a number of complex and perfectly coordinated changes that allow lung aeration and perfusion, and the establishment of extra uterine gas exchange and circulation. Amazingly, in most births these changes occur successfully and babies transition from fetal to neonatal life without problems. When this transition does not occur normally and medical interventions are not effective, there can be lifelong devastating consequences for the infant.

There are many maternal and fetal conditions that can interfere with this normal transition. Therefore, it is critical to recognize these problems early so preventive or corrective interventions can be implemented as quickly as possible to assure a normal adaptation.

The chapters in this issue of Seminars of Fetal and Neonatal Medicine address emergencies that can interfere with normal transition immediately after birth. They also describe some of the interventions that can support a normal transition and minimize the devastating consequences of severe perinatal asphyxia. These interventions require anticipation, coordination between different teams of providers, and the proper environment and equipment. Most importantly, it is essential to have a perinatal team that is experienced and skilled in the steps required to assist mother and infant during this critical period. It is interesting that because these emergencies are often unanticipated, the responsibility may fall in the hands of trainees who may not be the most experienced providers. One way of avoiding this is to have a seamless communication and coordination between obstetrical, anesthesiology and neonatal teams to anticipate and adequately prepare for such emergencies.

Although resuscitation of the newborn in the delivery room is a topic that is discussed frequently in the literature, many of the mechanisms involved in the transition from fetal to neonatal physiology have only been uncovered recently. As a result, this new knowledge is producing rapid changes in the way infants are managed immediately after birth.

The chapters in this issue discuss the most recent advances in this critical area of newborn care and are written by some of the leading researchers and clinicians in this field.

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