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In the past two decades, an explosion of new scientific knowledge in physiology, pharmacology and basic anesthetic techniques greatly changed the field of neonatal anesthesia. Moreover, the advance of sophisticated technology of critical care medicine, prolonged mechanical ventilation and the newly emerging non-traditional treatment modalities made the classic approach to an infant with a congenital anomaly who is a candidate for surgical intervention to be different in a way or another. It goes without saying that, this was reflected on the outcome of such neonates in terms of mortality and morbidity.

This work was intended to review the classic anesthetic approach of these neonates and to highlight the horizons of medical care of infants with congenital surgical emergencies.

The fundamental differences between neonates on one hand and older children and adults on the other hand as regards physiological and pharmacological aspects must be well known by every neonatal anesthesiologist for the safe and effective production of anesthesia especially in an emergently sick newborn.

Emphasis has been made on preserving the infant's body temperature using a variety of recently development equipment beside the conventional techniques. The use of the oxyscope is greatly encouraged during awake intubation as well as training on the use of fiberoptic bronchoscopic tracheal intubation which is essential tool for the neonatal anesthesiologist especially in infants with a difficult airway.

For patients with congenital diaphragmatic hernia, the use of the new treatment modalities should be evaluated carefully for their validity and effectiveness. They may improve mortality and morbidity in this anomaly which still have one of the highest mortality rates among the congenital anomalies of neonates. Emphasis has been made on the importance of adequate and optimal preoperative stabilization before rushing to surgical reduction of the hernia. This relatively recent trend has improved mortality figures in this situation.

For patients with tracheoesophageal fistula, attention is primarily paid to techniques of tracheal intubation, and avoidance of problems such as leakage of gases through the fistula.

The use of LASER surgery for excision of laryngeal papillomas and webs is increasing in recent years and suitable anesthetic equipment, including the Venturi jet ventilation, should be available in the large pediatric surgical units.

Other areas of neonatal surgery that may represent relatively urgent situation has been highlighted including anesthesia for intestinal obstruction, anterior abdominal wall defects, biliary atresia, as well as the anesthetic considerations for mandibular dysplasia syndromes, cardiac, and neurosurgical lesions.