Oxygenation in paediatrics

Science, Biology

Oxygenation in Pediatrics Oxygenation in Pediatrics All body cells need oxygen to perform. This oxygen is obtained from the environment and through the respiratory system and the blood help to deliver the inhaled oxygen to the tissues and cells of the body. Most of the growth processes such as brain development in pediatrics and infants require extra amounts of oxygen. In cases where enough oxygen does not reach the body cells in pediatrics and infants, as well as in adults, support oxygenation is necessary (Sinha 2012, p. 237).

During oxygenation in pediatrics, close monitoring is necessary. The monitoring is achieved through keeping an observant eye on the patient and looking for specific symptoms that will indicate the efficiency of the process. This is a simple visual inspection and involves checking for signs of reducing cyanosis on the tongue and extremities such as the palms and soles of the feet. This method is simple and easy to implement. However, differences in skin color and inability of the health professional to discern color change significantly limit this method. For instance, in blacks, cyanosis cannot be easily observed and may sometimes go unnoticed until it is too late. To solve this limitation, equipment are usually used. The most common of the instruments is the pulse oximeter. This is a device that is attached to the patient’s finger and measures the actual oxygen content in the blood. It, therefore, monitors the extent and effectiveness of oxygenation (Sinha 2012, p. 312). The main limitation of the equipment monitoring is that some people may read and interpret the readings wrongly leading to undue panic or preventing timely action. In addition, the connection of the equipment may vary the readings.

Oxygen administration in infants

There are various methods of oxygen administration in infants. These methods are selected depending on the availability of the equipment and hence affordability, as well as preference and infants condition. The methods are divided into invasive and non-invasive methods. The invasive methods make use of a tracheal tube and are recommended for infants with severe breathing conditions. The non-invasive methods include headbox oxygen administration which measures the oxygen concentration before entry into the respiratory system. Other methods include facemasks that assist in concentrating the oxygen being delivered around the nose. Both the headbox and facemasks pose a danger of carbon dioxide accumulation with increased expiration. Nasal prongs, nasal catheters and the nasopharyngeal catheters are also used to deliver oxygen to the lower respiratory tract. In these methods, the exhaled gasses do not mix with the incoming oxygen hence there is no danger of carbon dioxide accumulation (Tin 2006, p. 38). In administering oxygen to the infants, there are a number of considerations to be made. First, the age and the body weight of the infant should be considered. The amount and concentration of oxygen administered depend on the age and weight of the infant. Secondly, it is important to consider the developmental maturity of the respiratory system. With preterm infants, the lungs are not fully developed. This implies that administration of oxygen to these infants should be done with caution and an additional therapy, surfactant therapy, should be done. It is also important in oxygenation of the infants to consider close monitoring to ensure that enough oxygen reaches the vital organs such as the brain (Tin 2006, p. 40).

References

Sinha, I. P., 2012. Nelson textbook of pediatrics. Seminars in Fetal and Neonatal Medicine, 17, p. 380.

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