**Case Study**

The best course of action in managing this patient is dependent on the presenting condition and the history of illness. The patient presented with complain of “first breathing” and with a reduced SPO2 of 89%. This implies that the partial pressure of oxygen was reduced while the partial pressure of carbon dioxide was elevated. More so, the patient was coughing which implies that there might have been an irritation that was stimulating the coughing reflex (Cady, 2016). The history of the patient is suggestive of having tonic-clonic seizures and drowning.

In this patient, if the tonic-clonic seizures chronically affected the muscle of respiration, it might impair the expulsion of carbon dioxide leading to its accumulation. Chronically high levels of carbon monoxide causes peripheral chemoreceptor adaption. Since in the normal human being carbon dioxide is a potent stimulus of breathing, in this patient, he is likely to be reliant on P02 for breathing rather than CO2 due to chemoreceptor adaptation (Cady, 2016). Therefore, in oxygen therapy, it is important to use a non-rebreather mask to allow a mild hypoxia as it stimulates them to breathe.

Due to coughing, there is likely to be an increased mucosal irritation. The irritation could be a result of inflammation from aspiration of water after drowning. This can end up impairing gaseous exchange and hence reduced arterial partial pressure of oxygen and increased partial pressure of carbon dioxide (Cady, 2016). To manage this case, there is need of using bronchodilators such as β2 agonists to enhance gaseous exchange.

The patient history of perinatal global anoxia is important in order for the further studies. It is likely perinatal global anoxia caused brain damage in the region concerned with osmoreceptors and motor neurons (Milunsky, Friedman & Gluck, 2015). This interferes with the ability to sense the changes in plasma osmolality and signal transmission in the motor neuron that innervate muscles of swallowing. Electrolyte changes such elevated sodium and calcium in blood could be the leading factor to disorganized electrical impulses.

To that effect, it will be important that the patient undergoes comprehensive metabolic panel test (CMP) and imaging studies Gloss & Weisberg, 2017). This will reveal if there is electrolyte imbalance giving the lead to the cause of the seizures. The three differential diagnosis will be hypernatremia, pneumonia and generalized seizures. Drug-like valproic acid usually blocks sodium channel that may be causing the abnormal electrical activity leading to seizures.

**References**

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