Pyloric stenosis: metabolic changes

Pyloric stenosis results in recurrent projectile vomiting and this loss of acidic gastric fluid leads to hypovolemia, and a hypochloremic, hypokalemic metabolic alkalosis. It is imperative that these metabolic derangements be fixed prior to surgery and the realization of this has contributed to the substantial improvement in mortality of this disease from ~10% to near zero today.

One particular theoretical point of caution with regard to patients with pyloric stenosis is the risk for apnea. Due to the neonate's relatively large dependence on $PaCO_2$ to regulate breathing, as opposed to adults which have more mixed contributions from $PaCO_2$ and PaO_2, there is an increased risk of apnea and opiates should be used with caution. CO_2 regulates breathing via adjustment of the pH of CSF and in long term alkalosis, the CSF can also become alkalotic therefore potentially causing apnea at "normal" $PaCO_2$ levels.

Further reading: Kamata M, Cartabuke RS, Tobias JD. Perioperative care of infants with pyloric stenosis. Paediatr Anaesth. 2015 Dec;25(12):1193-206. doi: 10.1111/pan.12792. Epub 2015 Oct 22. PMID: 26490352.