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Paper Title: A comparison of airflow pattern between intubated and masked patient during controlled ventilation

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Abstract

An artificial ventilation or controlled ventilation by using automatic mechanical ventilator is generally performed in patient who has respiratory failure. Fresh air from ventilator can be applied to patient lung by invasive or noninvasive technic. In invasive technics or intubation, air is directed flow into patient lungs, Contrast with noninvasive, oronasal mask interfacing always use to apply air to patient which fresh air can flow into patient lungs and unfortunately always flow into patient stomach causing gastric distention which is common complication during noninvasive ventilation. Delivered tidal volume from ventilator is partially fill into stomach intently. In this research, we try to investigate an air volume from ventilator that divide naturally into patient lungs and stomach during the mask ventilation by using a FEM simulation and comparative study between invasive and noninvasive ventilation. However, as a preliminary, a simple intubated ET model and oronasal mask model are created in 2D domain with focusing on an airflow pattern, velocity profile. The simulation results show that some air volume fill into stomach which can be implied from air velocity. For the further, an air volume can be clearly estimated through 3D study especially when left-right lung and stomach compartment are added into the near future study.
