Paper id	BMEiCON2022-011
Title	A ventilator circuit for volume control mode
Author	Arthorn Sanpanich
Paper topics	

Abstract

An automatic ventilator is used to treat patient who has abnormality in respiratory system or spontaneous ventilation is not enough to maintain blood oxygen and carbondioxide level in a normal level. It functions to provide a fresh gas flow into patient lungs during an inspiration and remove exhaled gas from lungs during an expiration. Ventilator is known as the most complicated equipment in ICU due to a parameter setting, waveform understanding and variation of patient pathological variable under controlled ventilation which affect to ventilator operation. Then, new user always need time to practice and familiar with ventilator. In this paper, we present a simplified ventilator model by using an effective simulation tool in order to use as a simple tool in ventilation parameter study.

The proposed ventilator simulation is basically based on volume control ventilation mode (VCV) with focusing on PEEP setting at expiratory module. We also simulated an operation of O2 concentrator in gas supply module which is designed by using parallel flow system of both air and oxygen. As a preliminary, all main ventilation waveforms (Paw, VT, , TP, PEEP, O2%) obtain from this modified model show an effective response and be able to use as a routine practice for new practitioner. For further study, another basic ventilation mode and setting as PCV, IMV even patient trig gering setting will be added in the future