

PRE-OXYGENATION A SOLUTION TO EFFECTIVELY PRE-OXYGENATING PATIENTS

AquaVENT® FD140i Dual Therapy Gas Flow Driver

BACKGROUND

We have now taken delivery of our first AquaVENT® FD140i, prior to this we had no functional device available in our institution which brought the potential risk of perioperative hypoxic injury to our patients.

PROBLEM OR CHALLENGE

There's an increase of obesity amongst the adult population in the Republic of Ireland from 21.6% in 2010 to 25.3% in 2016 and is projected to have the highest prevalence of obesity in Europe by 2025^[1].

In NOHC we conducted a retrospective observational study using routinely collected, computerised clinical and demographic data of adult patients who presented to the pre-operative assessment clinic over a 10-year period (2010 -2019). Height and weight were measured, and body mass index (BMI) was calculated (kg/m²) accordingly. A total number of 16,317 patients with BMI data were included in the analysis. The overall prevalence of obesity (BMI > 30.0) increased significantly by 5% over the study period, from 45.67% (95% CI 42.9-48.4%) in 2010 to 50.68% (95% CI 48.6-52.8%) in 2019 (p = 0.004)^[2].

NOHC is a College of Anaesthesiologists of Ireland recognized teaching hospital, receiving scheme and non-scheme trainees who undergo training in regional and orthopaedic ambulatory anaesthesia, fulfilling their portfolio requirements and developing skills for their further consultancy career. We provide regular teaching, divided into theoretical and practical sessions including airway management in obese patients. High Flow Nasal Oxygen Therapy together with Oxford pillow is the routine and safe practice of managing airway in these high risk patients.

SOLUTION

AquaVENT® FD140i dual therapy flow driver delivers safe and effective CPAP and High Flow Oxygen Therapy, in a controlled and straightforward manner. High Flow Nasal Oxygen (HFNO, THRIVE) is delivered through nasal cannula and can achieve flow rate up to 80l/min and FiO₂ 100%. Its use in intensive care for spontaneously breathing patients is well established and novel uses are emerging in anaesthesia. Studies supporting its application in this field include the THRIVE (Transnasal Humidified Rapid Insufflation Ventilatory Exchange) study in apnoeic patients and the STRIVE Hi (Spontaneous respiration using intravenous anaesthesia and High Flow Nasal Oxygen) study in spontaneously breathing patients under anaesthesia^{[3][4]}.

It's been widely used during the Covid-19 pandemic for non-invasive ventilation. It was also successfully used in a patient with hypoxic cardiac arrest for the recovery period^[1]. In anaesthetic practice its main use is as the part of pre-oxygenation process before general anaesthesia in high risk obese and difficult airway patients prior intubation prolonging apnoea time without desaturation.

BENEFITS AND OUTCOMES

Managing difficult airways is stressful. Repeated laryngoscopy attempts can lead to airway trauma, oedema and bleeding. HFNO affords the 'luxury of time' to move to another method of securing the airway while maintaining oxygenation and reduces the possibility of morbidity from hypoxic brain injury in these difficult cases.



Cappagh
Hospital
Foundation

PROFILE

NATIONAL ORTHOPAEDIC HOSPITAL CAPPAGH

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