PRE-HOSPITAL OXYGEN THERAPY AND CO2 RETENTION IN PATIENTS ADMITTED THROUGH THE EMERGENCY DEPARTMENT

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Aim Patients with severe COPD are at risk of CO2 retention, due to uncontrolled oxygen administration. In Denmark, emergency medical service (EMS) care only offers respiratory support with 100% oxygen and treatment with fractionated oxygen is limited. In this retrospective study we sought to clarify the extent at which patients with hypercapnic acidosis, due to excessive pre-hospital oxygen therapy, were admitted through the emergency department (ED).

Methods Patients admitted through the ED were divided according to triage score. Venous blood samples were collected from all patients and arterialised using the venous to arterial conversion (v-TAC) software. All admissions of patients with CO2 retention (pCO2>6.0 kPa) and acidosis (pH<7.35) were identified. Patient records and EMS journals were reviewed to determine out-of-hospital saturation and vital signs.

Results 125 admissions were registered concerning respiratory issues. 11 patients had CO2 retention and acidosis. Mean prehospital saturation was 83.6% at first patient contact. Satura- tion increased to 95.0% upon arrival at the ED, and when triage took place in-hospital, saturation decreased to 91,1%. Blood gas revealed mean pH 7.29, pCO2 8.72 kPa, and pO2 10.2 kPa. But pCO2 values as high as 11 kPa were registered. All blood samples were drawn as part of the triage.

Conclusion Although few patients were identified with CO2 retention, results indicated that the cause most likely was high oxygenation pre-hospital. Studies exploring optimised pre-hospital oxygen therapy for patients with CO2 retention tendencies are required.

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