

Are pulmonary complications still a problem after subarachnoid hemorrhage? A single centre experience

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Introduction Up to 20% of patients with aneurysmal subarachnoid hemorrhage (aSAH) develop secondary pulmonary complications (SPC), including hypoxia ($P/F < 300$) and detectable alteration in chest X-ray. However, current evidence on strategies to prevent SPC in brain-injured patients is not conclusive.

Objectives Our aim is to describe in a consecutive SAH cohort the incidence and risk factors of SPC during the ICU stay.

Methods This retrospective analysis considered all consecutive adult patients with SAH, admitted to the Neurointensive Care Unit (NICU) at San Gerardo Hospital from 2015 to 2017. Demographic data, comorbidities, clinical classification of aSAH, blood gas analyses, ventilator and cardiocirculatory parameters were collected at admission and at day 7 (if still admitted to NICU) from a digital PMD system. Data are expressed as mean \pm SD or median (Q1; Q3).

Results We included 87 patients (59 ± 13 years old, Glasgow Coma Score (GCS) was ≤ 8 in 27% of patients, 74% were intubated at admission). World Federation of Neurosurgical Societies scale, Hunt Hess scale and Fisher grade were, respectively, 2 (1;4), 2 (2;4), 3 (2;4). The incidence of hypoxia at the admission was 15%, whilst at day 7 was 11%. 5% of patients developed hypoxia during NICU stay. Alteration in chest X-ray was present in 11% of patients at admission and in 56% at day 7. Tidal volume at admission and at day 7 was, respectively, 488 (450;519) and 450 (408;499) ml. Table 1 shows the relationship between hypoxia at admission and comorbidities or characteristics of aSAH.

Conclusions These preliminary data suggest that SPC in aSAH patients seems lower than previously reported. The routine use of low tidal volume ventilation may explain these findings. Moreover, we did not find relationship between hypoxia at admission and aSAH severity or patient comorbidities. Further analysis is needed to explore the phenomenon.

