

## Agitation and delirium in intensive cardiac care unit. A multicenter prospective registry

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**Background:** Patients with acute cardiovascular disease admitted to the Intensive Cardiac Care Unit (ICCU), especially those with more severe critical illness, experience agitation and delirium during hospitalization. Iatrogenic, environmental, or related to the severity of acute illness factors may concur to determine these two conditions. However, their epidemiological, clinical, and prognostic relevance in this specific clinical context are not well defined, yet. As a result, current recommendations on the evaluation and management of these complications are lacking.

The aim of this prospective, multicenter, observational registry was to evaluate the incidence of agitation and delirium in patients admitted to the ICCU for an acute cardiac event, their in-hospital prognostic impact, and their treatment.

**Methods:** We enrolled consecutive patients with acute cardiovascular events in four Italian tertiary-care centers. Agitation levels were ranked from Richmond Assessment Sedation Scale (RASS), and the presence of delirium was detected by Confusion Assessment Method-Intensive Care Unit (CAM ICU) at least twice a day and in case of variation of the state of consciousness. The primary endpoint was the incidence of agitation and/or delirium. The secondary endpoints were: 1) the association between these complications and in-hospital outcome and 2) the therapies adopted for their management.

**Results:** Overall, 723 patients were included in the registry. Of them, 116 (16%) presented agitation and/or delirium during ICCU stay. Delirium subtypes were: 6% hypoactive, 64% hyperactive, and 30% mixed. Patients with agitation/delirium had worse in-hospital outcomes than patients without. Indeed, they had a higher ICCU mortality (10% vs. 2%;  $P < 0.001$ ) and a higher rate of major complications: ventricular arrhythmias (26% vs. 12%;  $P < 0.001$ ), atrial fibrillation (29% vs. 15%;  $P < 0.001$ ), sepsis (15% vs. 9%;  $P = 0.06$ ), and bleeding (17% vs. 7%;  $P < 0.001$ ). Moreover, they were more frequently treated with mechanical procedures: invasive and non-invasive ventilation (58% vs. 18%;  $P < 0.001$ ), circulatory support (20% vs. 5%;  $P < 0.001$ ), continuous renal replacement therapy (6% vs. 1%;  $P < 0.001$ ). Finally, ICCU length of stay was longer (8 vs. 4 days;  $P < 0.001$ ). The drugs more likely used for agitation treatment were benzodiazepine (32%), dexmedetomidine (31%), opioids (10%), and antipsychotic drugs (1%). Delirium was mainly treated with dexmedetomidine (46%), benzodiazepine (23%), antipsychotic drugs (16%), and opioids (8%).

**Conclusions:** This study demonstrates that agitation and delirium are frequent complications also in the acute cardiac setting and are associated with poor in-hospital outcome. In this particular context, the treatment of choice and its possible impact on prognosis remain to be established.