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| **Title:**“Blood-Brain Matters“ – A Study on the Clinical Impact of Anemia in Neurocritical Care of Ruptured Intracranial Aneurysms **Authors:** YIM Carmen1, LI Ronald2, WONG Kai Sing Alain3, CHAN Kwong Yau4**Institution(s):**1, 2, 3, 4Department of Neurosurgery, Kwong Wah Hospital, Hong Kong**Abstract:** ***Objective*:**To study the prevalence of anemia in neurocritical care patients with ruptured intracranial aneurysms managed by endovascular coiling, the trend of hemoglobin and hematocrit in the acute phase of subarachnoid hemorrhage (Day 0 to Day 14), and the risk factors and clinical impact of anemia. ***Method:***This is a nine-year retrospective review of patients admitted to the Department of Neurosurgery, Kwong Wah Hospital, from 2012 to 2020, with subarachnoid hemorrhage secondary to ruptured intracranial aneurysms and received endovascular management. A total of 187 cases are recruited. Primary outcomes are the prevalence of anemia and the clinical outcomes of anemic and non-anemic patients. This study will look into the percentage of anemic patients, the mean and nadir hemoglobin and hematocrit levels at Day 0 to Day 14 of subarachnoid hemorrhage, and the percentage of red cell transfusion. Regarding the clinical impact of anemia, we will compare the percentage of vasospasm, cerebral infarct, myocardial infarct, modified Rankin Scale upon discharge, length of hospital stay and mortality rate between patients with and without anemia. For the secondary outcomes, we would like to identify risks factors associated with anemia by performing regression analysis of the baseline hemoglobin level, iron deficiency, the use of aspirin and anticoagulant and their associations with anemia. Statistical analysis will be performed by SPSS (version 26). ***Result:***A downward trending of hemoglobin and hematocrit level is observed at Day 0 to Day 14 post-subarachnoid hemorrhage. Up to 80% of patients developed anemia, with most of them being mildly anemic, Patients with moderate and severe anemia in general have longer hospital stay and a poorer modified Rankin Scale score upon discharge. In patients with vasospasm and cerebral infarct, the majority of them are from the moderately anemic group. The relationships between anemia and its risk factors are to be investigated.***Conclusion:***Anemia is a commonly observed condition in neurocritical patients and is associated with poorer clinical outcomes. More judicious use of intravenous fluid and lower threshold for blood transfusion can be considered in future neurocritical care.  |