ECVIM-CA
35TH ANNUAL CONGRESS
18-20 SEPTEMBER 2025
MAASTRICHT

**ESVIM-O-04**

# Prevalence of tachypnea and/or acute respiratory distress secondary to packed red blood cell transfusion in cats and association with survival

Corentin Alsteens [1], Anne-Christine Merveille [1], Priscilla Burnotte [2], Kris Gommeren [2]

[1] Small animals department - University of Liege Cardiology , Liège, Belgium
[2] Small animals department - University of Liege , Liège, Belgium

Respiratory complications are the leading cause of mortality in human transfusion medicine. Acute respiratory distress (ARD) and transfusion-associated volume overload (TAVO) have been reported in cats, but risk factors and predisposing conditions are poorly defined. The objectives of this study were to determine the prevalence of ARD and TAVO in a large population of transfused cats, to identify associated risk factors and investigate their association with 24-hour survival.

This cross-sectional retrospective study included cats that received a packed red blood cell (pRBC) transfusion between January 2020 and February 2025. Data collected included signalment, anemia etiology, clinical and point-of-care ultrasound (POCUS) parameters before and after transfusion, blood type and volume, transfusion duration, 24-hour survival, and transfusion-related complications. Left atrial (LA) enlargement was defined by an LA/Ao>1.7 on POCUS. ARD was defined by the development of tachypnoea and/or dyspnea within 24-hours after transfusion, without other explanations, such as hyperthermia. Cats were subsequently subdivided into TAVO, transfusion related acute lung injury (TRALI) or undetermined origin. Diagnosis of TAVO was based on echocardiography, thoracic imaging and/or POCUS findings of novel pleural or pericardial effusion or B-lines and LA enlargement. TRALI was defined by bilateral pulmonary oedema on thoracic imaging without LA dilation. Cases that did not meet TAVO or TRALI criteria were classified as undetermined ARD. Comparison and association between groups were tested using Mann-Withney U test and chi-square test, respectively. Data are expressed as median and interquartile range[Q1–Q3], significance was set at $p<0.05$.

A total of 352 transfusions on 264 cats were included. ARD occurred in 15% (53/352) of transfusions, with TAVO accounting for 10.8% (38/352), TRALI for 0.3% (1/352), and undetermined ARD for 4% (14/352). Older cats were significantly more likely to develop TAVO (7 years [4.0-12.0]) compared to cats that did not develop TAVO (4.5 years [2.0-9.0]; $p<0,023$). ARD cats had lower heart rate (180 bpm [150-200]) and body temperature (36.7 °c [35.2-38.0]) before transfusion compared to cats that did not develop ARD (200 bpm [172-220]; 37.7 °c [36.6-38.5]; $p<0,013$). Gallop rhythm, enlarged LA on POCUS and furosemide administration prior to transfusion were more frequent in ARD cats before transfusion ($p<0,003$). Twenty-four hours survival was negatively impacted by ARD ($p<0.001$), whereas TAVO did not affect 24-hour survival.

ARD and TAVO occurred relatively frequently in cats receiving pRBC-transfusions. Lower heart rate, temperature and increased LA/Ao ratio were risk factors for ARD. ARD, but not TAVO was negatively associated with 24-hour survival.