Emergency department cardiovascular disease encounters and associated mortality in patients with cancer: a study of 20.6 million records from the USA

O. Kobo1, S.M. Moledina2, Z. Raisi-Estabragh3, A. Chieffo4, M.C. Alraies5, G. Biondi-Zoccai6, M. Mohamed2, A. Roguin1, M.A. Mamas2

1Hillel Yaffe Medical Center, Hadera, Israel; 2Keele University, Keele, United Kingdom; 3William Harvey Research Institute, London, United Kingdom; 4University Vita-Salute San Raffaele, Milan, Italy; 5Detroit Medical Center, Detroit, United States of America; 6Sapienza University of Rome, Rome, Italy

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Background: There is limited data on Emergency department (ED) cardiovascular disease (CVD) presentations and outcomes amongst cancer patients. The present study aimed to describe the clinical characteristics, prevalence, and clinical outcomes of the most common cardiovascular ED admissions in patients with cancer.

Methods: All ED encounters with a primary CVD diagnosis from the US Nationwide-Emergency Department Sample between January 2016 to December 2018 were stratified by cancer type as well as metastatic status. Multivariable logistic regression was performed to determine the adjusted odds ratios of in-hospital mortality in different groups.

Results: From a total of 20,737,247 ED encounters with a primary CVD diagnosis, cancer was present in 3.4%. In patients with cancer the most common CVDs were DVT/PE (20%), hypertensive heart or kidney disease (14.7%), and AF/flutter (11.2%). The distribution of CVDs varied by cancer type, with AF/flutter most common in patients with lung cancer, AMI most common in patients with prostate cancer, heart failure most common in those with haematological malignancies, and patients with colorectal cancer having the greatest frequency of DVT/PE. Cancer status was independently associated with significantly higher risk of mortality in almost all CVD categories, consistent across all the cancer types, amongst which lung cancer patients had the highest risk of mortality across all CVD categories, except intracranial haemorrhage and hypertensive crisis.

Conclusions: Cardiovascular presentations to the ED varied by cancer subtype. Across all cancer subtypes, patients presenting with cardiovascular presentations carried a significantly increased risk of mortality compared to patients with no cancer.