

**590 ACE-I and ARBS do not influence the chest CT presentation and 1-year survival of COVID-19 patients: Italian multicentre registry**

Lucia Ilaria Birtolo<sup>1</sup>, Fabio Infusino<sup>1</sup>, Alessandro Depaoli<sup>2</sup>, Sara Cimino<sup>1</sup>, Silvia Proserpi<sup>1</sup>, Fabrizio D'Ascenzo<sup>3</sup>, Maria Chiara Colaiacomo<sup>4</sup>, Chiara Andreoli<sup>4</sup>, Giovanni Battista Forleo<sup>5</sup>, Marco Schiavone<sup>5</sup>, Chiara Valentina Lario<sup>6</sup>, Sara Monosilio<sup>1</sup>, Paolo Ricci<sup>4</sup>, Carlo Catalano<sup>7</sup>, Giancarlo Ceccarelli<sup>8</sup>, Gabriella D'Ettore<sup>8</sup>, Gioacchino Galardo<sup>9</sup>, Francesco Pugliese<sup>10</sup>, Gaetano Maria De Ferrari<sup>3</sup>, Viviana Maestrini<sup>1</sup>, Massimo Mancone<sup>1</sup>, and Francesco Fedele<sup>1</sup>

<sup>1</sup>Department of Clinical, Internal, Anesthesiology and Cardiovascular Sciences, Sapienza University of Rome, Italy, <sup>2</sup>Radiodiagnostic Unit, AOU Città della Salute e della Scienza, University of Turin, Italy, <sup>3</sup>Division of Cardiology, Department of Medical Sciences, AOU Città della Salute e della Scienza, University of Turin, Italy, <sup>4</sup>Unit of Emergency Radiology, Policlinico Umberto I, Sapienza University of Rome, Italy, <sup>5</sup>Division of Cardiology, Luigi Sacco Hospital, Milan, Italy, <sup>6</sup>Radiology Department, Mauriziano-Umberto I Hospital, Turin, Italy, <sup>7</sup>Department of Radiological, Oncological and Pathological Sciences, Policlinico Umberto I, Sapienza University of Rome, Italy, <sup>8</sup>Department of Public Health and Infectious Diseases, Sapienza University of Rome, Italy, <sup>9</sup>Emergency Department, Policlinico Umberto I Hospital, Sapienza University of Rome, Italy, and <sup>10</sup>Department of Anaesthesia and Intensive Care Medicine, Policlinico Umberto I, Sapienza University of Rome, Italy

**Aims:** A possible interference between ACE-i or ARBs with ACE-2 receptor and SARS-CoV-2 pathway has been raised. Despite data have shown no clinical impact of therapy with ACE-I or ARBs on COVID-19, these drugs are often discontinued upon hospitalization or diagnosis. To evaluate the effects of cardiovascular risk factors (CVRf) and prior outpatient therapy with RAAS inhibitors on the chest CT severity score performed within 24 h of diagnosis of SARS-CoV-2 infection (before stopping medications or starting specific therapy for COVID-19) and on 1-year survival.

**Methods and results:** This is a multicentre, prospective, observational study. All admitted patients diagnosed with SARS-CoV-2 infection who performed chest CT within 24 h of arrival were consecutively enrolled from 1 March to 1 June 2020. A severity score was attributed to Chest CT by two radiologists in blind to the patient's clinical information and a cut-off value of 19.5 was considered to define severe radiological pneumonia. A 1-year telephone follow-up was performed in order to evaluate the determinants of 1-year survival. 590 patients with a mean age of  $63 \pm 14$  years were included. Seventy-three (12.4%) patients were treated with ACE-I, 85 (14.4%) with ARBs and 62 (10.5%) with CCB. Cox regression analysis showed that male gender (OR: 1.4; 95% CI: from 1.02 to 2.07;  $P=0.035$ ), diabetes (OR: 1.6; 95% CI: from 1.03 to 2.7;  $P=0.037$ ), age (OR: 1.02; 95% CI: from 1.008 to 1.033;  $P=0.001$ ), and obesity (OR: 3.04; 95% CI: from 1.3 to 6.7;  $P<0.001$ ) were independently associated with a severe CT score. Of note, while prior outpatient therapy with ACE-I and ARBs was not independently associated with severe CT score, therapy with CCB was independently associated with a severe CT score (OR: 1.9, 95% CI: from 1.05 to 3.4,  $P=0.033$ ). Severe chest CT severity score (OR: 1.05; 95% CI: from 1.02 to 1.08;  $P<0.001$ ), P/F ratio (OR: 0.998; 95% CI: from 0.994 to 0.998;  $P<0.001$ ), and older age (OR: 1.06; 95% CI: from 1.03 to 1.1;  $P<0.001$ ) were independently associated with mortality at 1-year follow-up. Neither ACE-I, ARBs, and CCB were associated with mortality at 1 year follow-up.

**Conclusions:** ACE-I and ARBs do not influence the chest CT presentation of COVID-19 patients at the time of diagnosis. Furthermore, ACE-I and ARBs do not influence 1-year survival of COVID-19 survivors.