Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Disclosure of interest The authors declare that they have no competing interest.

https://doi.org/10.1016/j.acvdsp.2021.10.002

160

Impact of cardiac and acute kidney injury on COVID-19 in-hospital mortality

A. Bachir Cherif[1,*], S. Bennouar[2], S. Abdi[2], M.T. Bouafia[1]
[1] *Médecine interne et cardiologie, faculté de médecine Blida 1, Blida, Algeria*
[2] *Laboratoire central, Blida, Algeria*
[*] *Corresponding author.*
E-mail address: ghani11bc@yahoo.fr (A. Bachir Cherif)

Background and aim The severity of Coronavirus Disease 2019 (COVID-19) is a multifactorial condition. Cardiac and acute kidney injury (AKI) are two complications commonly reported in severe forms of COVID-19. We aimed to investigate the effect of these tow complications on the COVID-19 in-hospital mortality.
Materials and methods This is a prospective study, including 120 severe cases of COVID-19, admitted at the university hospital of Blida. Troponin was assessed by an immuno-fluoroassay method. AKI was defined according to the KDIGO-2012 guidelines. The association with in-hospital mortality was assessed using the Kaplan—Meier survival curve, proportional Cox regression analyses and the receiver operating characteristic curve.
Results Cardiac and acute kidney injury were very common, occurring in 19% and 25% of patients. When analyzing survival, both were significantly associated with in-hospital mortality ($p_{LogRank} < 0.0001$). A cutoff value of 9.6 ng/mL for troponin and 13.9 mg/L for creatinine could predict poor prognosis with a sensitivity of 73% and 67%, and a specificity of 62% and 64%, respectively. Hazard ratios were (HR = 3.5, 95% CI [1.7—7.3], $P = 0.001$ and HR = 3.14, 95% CI [1.6—6.1], $P = 0.001$) for troponin cutoff and AKI respectively.
Conclusion This study demonstrates the high frequency of cardiac and acute kidney injury in severe COVID-19 patients and provides further evidence of their potential link to poor short-term prognosis.
Disclosure of interest The authors declare that they have no competing interest.

https://doi.org/10.1016/j.acvdsp.2021.10.003

317

Endothelial dysfunction is the key of long COVID-19 symptoms: The results of TUN-EndCOV study

S. Charfeddine[1,2,*], H. Ibnhadjamor[3,4], S. Torjmen[1,2], S. Kraiem[3], R. Hammami[1,2], A. Bahloul[1,2], N. Kallel[2,5], N. Moussa[2,5], I. Touil[6], S. Milouchi[2,7], J. Elghoul[2,8], Z. Meddeb[4,9], Y. Thabet[9], J. Jdidi[2,10], K. Bouslema[4,5], S. Abdesselem (Private cardiologist)[4,11], L. Abid[1,2]
[1] *Cardiology, Hédi Chaker university hospital Sfax, Sfax, Tunisia*
[2] *University of medicine of Sfax, Sfax, Tunisia*
[3] *Cardiology, Tahar Sfar hospital Mahdia, Mahdia, Tunisia*
[4] *University of medicine of Tunis El Manar, Tunis, Tunisia*
[5] *Pneumology, Hédi Chaker university hospital Sfax, Sfax, Tunisia*
[6] *Pneumology, Tahar Sfar hospital Mahdia, Mahdia, Tunisia*
[7] *Cardiology, Habib Bourguiba hospital Medenine, Medenine, Tunisia*
[8] *Pneumology, Habib Bourguiba hospital Medenine, Medenine, Tunisia*
[9] *Internal medicine, Mongi Slim LaMarsa hospital, Tunis, Tunisia*
[10] *Preventive medicine, Hédi Chaker university hospital Sfax, Sfax, Tunisia*
[11] *Tunis, Tunisia*
[*] *Corresponding author.*
E-mail address: selma_charfeddine@yahoo.fr (S. Charfeddine)

Background The COVID-19 disease is a multisystem disease due to in part to the vascular endothelium injury. Lasting effects and long-term sequalae could persist after the infection and may be due to persistent endothelial dysfunction.
Purpose Our study focused on the study of endothelial function measurement by digital thermal monitoring (DTM) of endothelial quality index with E4 diagnosis Polymath in a large cohort of long COVID-19 patients to determine whether long COVID-19 symptoms are due to endothelial dysfunction.
Methods This is a prospective multicenter longitudinal observational cohort study. Endothelial function was evaluated with ''E4-Diagnose'' Polymath Tunisia based on the Endothelium Quality Index (EQI). A complete echocardiographic evaluation analysis was performed. Primary outcomes were defined as the occurrence of long COVID-19 symptoms in patients with endothelial dysfunction measured by EQI.
Results A total of 798 patients were included in this study. Patients were included at an average time of 68.93 ± 43.1 days. The mean EQI was 2.02 ± 0.99 [0—5]. A total of 397 (49.7%) patients had poor or very poor EQI and 211 (26.4%) patients had very poor EQI. The median age was 49.94 ± 14.2 (18—80) years. A total of 618 patients (77.4%) had long COVID-19 symptoms. Patients with long COVID-19 symptoms had a reduced EQI (1.99 ± 0.97 vs. 2.09 ± 1.05, $P = 0.24$). Among long COVID-19 symptoms, fatigue was the most common symptom reported in 42.2%. Fatigue and chest pain were significantly associated to the endothelial dysfunction ($P = 0.04$ and 0.001 respectively). Patients with chest pain had significantly lower EQI (1.74 ± 1.0 vs. 2.09 ± 0.9, $P \leq 10^{-3}$) and LVGLS (-16.35 ± 3.0 vs. -17.16 ± 2.5, $P = 0.04$).
Conclusion Long COVID-19 symptoms specifically chest pain and fatigue are due to persistent poor endothelial quality index. These findings allow a better care of patients with long COVID-19 symptoms.
Disclosure of interest The authors declare that they have no competing interest.

https://doi.org/10.1016/j.acvdsp.2021.10.004

314

Predictors of thromboembolic events in COVID-19 ambulatory patients

R. Hammami[1,*], J. Jihen[2], S. Charfeddine[1], A. Bahloul[1], R. Gargouri[1], L. Abid[1]
[1] *Service de cardiologie Sfax, Tunisia*
[2] *Service de médecine préventive Sfax, Tunisia*
[*] *Corresponding author.*
E-mail address: raniahammami@yahoo.fr (R. Hammami)

Introduction Unlikely COVID-19 hospitalized patients, there are not clear data about the incidence and the predictors of arterial and venous thromboembolic events in COVID-19 outpatients patients.
Objectives To determine the incidence of TE in COVID-19 ambulatory setting.
Patients and methods We conducted an observational study in our study including COVID-19 ambulatory patients and we analysed the predictors of TE events at 30 days.
Results We included 2089 patients with a mean age of 43 ± 16 years. The incidence of primary outcomes was 1.6% and the incidence of venous and arterial TE complications was 0.9%. The predictors of arterial and venous TE complications were hormonal contraception (OR = 23), moderate clinical presentation (OR = 3.5), recent surgery or miscarriage during the last month before COVID-19 infection (OR = 9.2) and COVID-19 signs on CT scan (OR = 4.9). While physical activity proved to be a protective factor.

Conclusions The incidence of TE events is low in COVID-19 patients. Thromboprophylaxis should be prescribed in selected people.

Disclosure of interest The authors declare that they have no competing interest.

https://doi.org/10.1016/j.acvdsp.2021.10.005

434

Profile of cardiovascular manifestations in COVID-19 patients at the Libreville university hospital center, Gabon

E. Ayo Bivigou[1,2,*], M. Igala[2], C. Manomba[2], C. Allognon[1,2], F. Ndoume[1,2], C. Yekini[1,2], L. Ndjibah[1,2], U. Kombila[2], C. Akagah Konde[1,2], P. Kouna[2], J.B. Boguikouma[2], M.K. Bouyou Akotet[3]

[1] *Cardiology, university hospital center, Libreville, Gabon*

[2] *Department of medicine, faculty of medicine, université des sciences de la santé, Libreville, Gabon*

[3] *Department of basic and bioclinical sciences, faculty of medicine, université des sciences de la santé, Libreville, Gabon*

* *Corresponding author.*

E-mail address: bivayo@yahoo.fr (E. Ayo Bivigou)

Introduction Cardiovascular affections are frequent in COVID-19.

Purpose The aim of this study was to describe the profile of cardiovascular manifestations in a population of patients with SARS-CoV-2 infection.

Methods This was a descriptive retrospective study carried out at the center hospitalier universitaire de Libreville on April 1st, 2020 to March 30th, 2021. All the files of patients hospitalized for COVID-19 that were confirmed by PCR and presenting a cardiovascular affection were included. These patients had undergone a complete clinical examination and an electrocardiogram. Doppler echocardiography and/or thoracic CT angiography were performed according to clinical suspicion. The data were processed with SPSS 16.0 software. Quantitative variables are described as median or mean and qualitative variables as a percentage.

Results Out of the 452 patients admitted for COVID-19 during this period, 51 (11.3%) presented a cardiovascular affection. The mean age was 59.1 ± 13.3 years with a predominance of men (sex ratio 1.4). Cardiovascular risk factors were dominated by high blood pressure (60.7%), obesity (43.1%) and diabetes (19.6%). The most common cardiovascular manifestations were pulmonary embolism (31.3%), arrhythmias (33.3%) and heart failure (21.6%). Acute coronary syndromes were rarer (5.9%). The medians of D dimers and CRP were 3270 microg/L and 60.5 mg/L, respectively. COVID-19-specific pulmonary CT lesions were severe in 19.6% of cases. Non-invasive ventilation was performed in 17.6% of patients. Hospital mortality was 7.8%.

Conclusion Cardiovascular manifestations are frequent in Libreville for COVID-19 and affect young people. The early diagnostic and management of these affections are essential despite this particular infectious context.

Disclosure of interest The authors declare that they have no competing interest.

https://doi.org/10.1016/j.acvdsp.2021.10.006

329

Sulodexide in the treatment of patients with long COVID 19 symptoms and endothelial dysfunction: The results of TUN-EndCOV study

S. Charfeddine[1,2,*], H. Ibn Hadjamor[3,4], S. Torjmen[1,2], S. Kraiem[3], R. Hammami[1,2], A. Bahloul[1,2], N. Kallel[2,5], N. Moussa[2,5], I. Touil[6], J. Jdidi[2,7], S. Abdesselem (Private cardiologist)[4,8], L. Abid[1,2]

[1] *Cardiology, Hédi Chaker university hospital, Sfax, Tunisia*

[2] *University of medicine of Sfax, Sfax, Tunisia*

[3] *Cardiology, Tahar Sfar hospital Mahdia, Mahdia, Tunisia*

[4] *University of medicine of Tunis El Manar, Tunis, Tunisia*

[5] *Pneumology, Hédi Chaker university hospital Sfax, Sfax, Tunisia*

[6] *Pneumology, Tahar Sfar hospital Mahdia, Mahdia, Tunisia*

[7] *Preventive medicine, Hédi Chaker university hospital Sfax, Sfax, Tunisia*

[8] *Tunis, Tunisia*

* *Corresponding author.*

E-mail address: selma_charfeddine@yahoo.fr (S. Charfeddine)

Background Endothelial dysfunction is probably one of the mechanisms of long COVID-19 symptoms. Sulodexide has pleiotropic properties within the vascular endothelium that can prove beneficial in the long COVID-19 symptoms.

Purpose We aimed to evaluate the effect of sulodexide when used in patients with endothelial dysfunction and long COVID-19 symptoms.

Methods We conducted a prospective multicenter longitudinal case-control study. Endothelial function was evaluated with DTM ''E4-Diagnose'' Polymath based on the Endothelium Quality Index (EQI). A group of patients with endothelial dysfunction (EQI < 2.0) received sulodexide. All the patients were followed-up 21 days after inclusion. Primary outcomes were defined as endothelial function amelioration (delta EQI) and long COVID-19 symptoms evolution during the follow-up.

Results A total of 410 patients were included in this study. Patients were included at an average time of 1.89 ± 1.2 month after COVID-19 infection. At inclusion, 210 (51.2%) patients had an EQI < 2. The median age was 49 ± 13.8 (18—80) years. Among the patients with endothelial dysfunction, only 79 patients received sulodexide. Patients in sulodexide group had lower EQI than the non-medical intervention group (0.94 ± 0.6 vs. 1.52 ± 0.4; $P < 10^{-3}$). They were more diabetic, hypertensive, had more coronary artery disease and received more long-term medications (aspirin, Bblockers and statins) than the others ($P = 0.01$, 0.002, 0.01, 0.009, 0.001 and 0.01, respectively). At the 21-days follow-up, patients in sulodexide group presented lower long COVID symptoms especially chest pain, palpitations, fatigue and neuro-cognitive difficulties associated to a significant amelioration of endothelial function (delta EQI 1.26 ± 1.07 vs. 0.22 ± 0.7; $P < 10^{-3}$).

Conclusion Sulodexide in patients with long COVID-19 may be a good intervention to ameliorate chest pain, palpitations, fatigue and neuro-cognitive difficulties associated to endothelial dysfunction.

Disclosure of interest The authors declare that they have no competing interest.

https://doi.org/10.1016/j.acvdsp.2021.10.007