



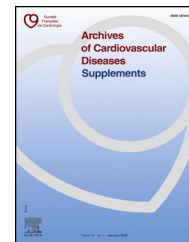
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Venous thromboembolism in non-critically ill patients with COVID-19 infection



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Background Systemic coagulation activation and thrombotic complications are frequent among critically ill patients with

COVID-19. Limited data are available in non-intensive care unit (ICU) patients.

Purpose To determine the incidence, risk factors and prognosis of venous thromboembolism (VTE) in non-ICU COVID-19 patients.

Methods We studied consecutive COVID-19 patients admitted to general ward at Strasbourg Hospital, France (25.02.2020–19.04.2020). The primary outcome was any VTE complication. The secondary outcome was the composite of death or transfer to ICU.

Results Among the 289 patients included (62.2 ± 17.0 years, 59.2% male), VTE occurred in 49 (17.0%). Padua prediction score for VTE was similar between VTE and non-VTE patients. VTE imaging tests were performed in 100 (34.6%) patients and VTE diagnosed in median 7 (3–11) days after admission. On-admission, time from symptom onset to admission (OR 1.07, CI 95% [1.00–1.16], $P=0.045$), Improve score (OR 1.37, [1.02–1.83], $P=0.032$), leukocyte count (OR 1.16, [1.06–1.27], $P=0.001$) and lack of thromboprophylaxis (OR 27.85, CI 95% [9.35–82.95], $P<0.001$) were independent predictors of VTE. The incidence of the composite of death or ICU transfer was 31.0% and more frequent among patients with VTE (47.9% vs. 27.9%, $P=0.01$). Fever (OR 5.37, CI 95% [1.44–19.97], $P=0.012$), VTE (OR 3.44, CI 95% [1.63–7.25], $P=0.001$), lymphopenia (OR 0.32, 95% CI [0.15–0.71]; $P=0.005$) and extent of COVID-19 evaluated by chest CT severity (OR 1.56, 95% CI [1.12–2.16]; $P=0.007$) were independently associated with in-hospital death or transfer to ICU (Table 1, Fig. 1).

Table 1 Data are presented as mean ± standard deviation in case of any other indication.

Outcomes of the study population stratified by concomitant in-hospital venous thromboembolic events				
Outcomes	Global Cohort (n = 289)	VTE (n = 49)	No VTE (n = 240)	P-value
Venous thromboembolic event - no. (%)	49 (17.0)	49 (100.0)	–	–
Acute pulmonary embolism	42 (14.5)	42 (85.7)	–	–
Cerebral venous thrombosis	3 (1.0)	3 (6.1)	–	–
Deep vein thrombosis	12 (4.2)	12 (24.5)	–	–
Transfert to ICU or in-hospital death - no. (%)	90 (31.0)	23 (47.9)	67 (27.9)	0.010
In-hospital death - no. (%)	24 (8.3)	6 (12.2)	18 (7.5)	0.265
Time from admission to death - days	9.1 ± 5.8	13.3 ± 6.0	7.7 ± 5.2	0.038
Transfer to ICU - no. (%)	72 (25.0)	21 (43.8)	51 (21.3)	0.002
Time from admission to ICU transfer - days	1.9 ± 1.9	2.2 ± 1.9	1.7 ± 1.9	0.337
Discharged alive - no. (%)	236 (88.7)	35 (83.3)	201 (89.7)	0.284
Maximal oxygen flow rate - L/min	5.6 ± 4.9	6.6 ± 5.0	5.4 ± 4.9	0.126
Length of stay - days	12.1 ± 7.5	16.5 ± 8.7	11.4 ± 7.1	<0.001

COVID-19: coronavirus disease 2019; ICU: intensive care units.

Conclusions The 17.0% incidence of VTE in non-ICU patients with COVID-19 was associated with worse outcomes. Given the high incidence of VTE in ward patients, there is an urgent need to investigate the optimal anticoagulation regimen.

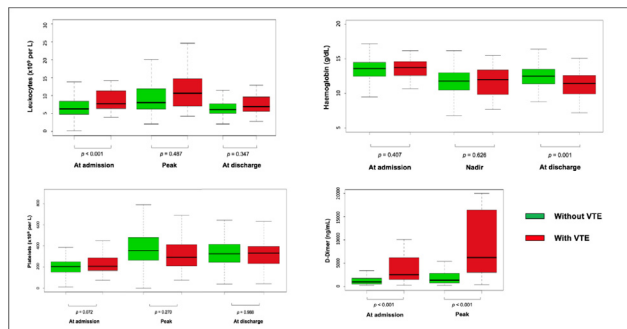


Fig. 1 Leukocytes, hemoglobin, platelets and D-Dimer in COVID-19 patients during hospitalization.

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

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Beyond the PRES, a whole new entity: Cerebral impact of malignant hypertension

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Introduction Malignant hypertension, the most severe form of hypertension, is characterized by acute and diffuse microvascular damage. The ophthalmological, renal and cardiological consequences are well described. Brain damage is considered rare and poorly known, although it is one of the main causes of death.

Method We performed a systematic cerebral MRI on patients of the Bordeaux cohort with malignant hypertension between 2008 and 2018, regardless of their neurological symptoms. A subgroup of patients benefited from a second cerebral MRI. All MRI were analysed by the same trained operator.

Results 92 patients were included, 67.5% male, mean age 47.8 ± 12 years. On admission, 41.5% of the patients were totally asymptomatic from a neurological aspect. Cerebral MRI was normal in 18.5% of patients. A posterior reversible encephalopathy syndrome was found in 16.5% of patients, 33.5% had an ischemic or hemorrhagic stroke. Patients had marked microvascular impairment (SVD score 2 or higher) in 59% of cases. In asymptomatic patients or patients with headaches only, MRI found PRES in 15.5% of cases, recent ischemic or hemorrhagic stroke in 29% of cases, and SVD score 2 or higher in 51.5% of cases.

Conclusion Most patients with malignant hypertension have brain injuries, regardless of their symptoms. This warrants systematic cerebral MRI, as the results may impact on their management. The consequences of these severe lesions, which are disproportionately severe for young patients, raise questions about the need for cognitive assessment and management.

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

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Association between lipid parameters and carotid-femoral pulse wave velocity

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Introduction Carotid-femoral pulse wave velocity (cfPWV) is the current gold standard to assess arterial stiffness, a strong predictor of cardiovascular mortality. Recently, some studies demonstrated that cfPWV was independently correlated with LDL cholesterol.

Purpose The aim of this study was to assess the correlation of apolipoprotein B and cfPWV.

Methods During a complete work-up of hypertension, lipids parameters were collected after an overnight fast. CfPWV was measured with a Complior device. Real travel distance was used ($0.8 \times$ direct travel distance) to assess PWV as recommended.

Results Our cohort included 973 hypertensive patients with the following characteristics: age 50.5 ± 14.8 years, 51.1% of men, blood pressure $150 \pm 25/84 \pm 15$ mm Hg, body mass index 26.8 ± 4.8 kg/m², 20.1% of smokers, 14.2% of diabetes, eGFR 87.0 ± 23.1 mL/min, total cholesterol 5.1 ± 1.0 mmol/L, LDL cholesterol 3.1 ± 0.9 mmol/L, non-HDL cholesterol 2.0 ± 0.5 mmol/L, apolipoprotein B 1.0 ± 0.3 mmol/L and cfPWV 8.8 ± 2.4 m/s. Using a continuous variable cfPWV was correlated with total cholesterol ($r=0.111$, $P=0.001$), LDL cholesterol ($r=0.074$, $P=0.021$), non-HDL cholesterol ($r=0.102$, $P=0.002$) and more significantly with apolipoprotein B ($r=0.154$, $P<0.001$). In multivariate logistic regression model after adjustment for age, sex, HR, mean BP, fasting glucose, smoking, BMI and lipid lowering therapy, a cfPWV > 10 m/s was independently associated with apolipoprotein B [Hazard ratio 1.91, 95% CI (1.06–3.45)] but not with total cholesterol [Hazard ratio 1.14, 95% CI (0.99–1.32)]; LDL cholesterol [Hazard ratio 1.14, 95% CI (0.96–1.34)] and non-HDL cholesterol [Hazard ratio 1.24, 95% CI (0.90–1.71)].

Conclusion In this cohort of hypertensive patients, apolipoprotein B was the strongest lipid parameters associated with cfPWV. It may explain the additive prognostic value of apolipoprotein B on top of other lipid parameters to predict cardiovascular events.

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

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Therapeutic management of malignant hypertension: Proof of concept of an entirely oral therapeutic approach

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Introduction Malignant hypertension (MHT) is a very serious, potentially lethal form of hypertension. However, there are currently no specific guidelines for therapeutic management.

Material and methods Our study based on the MHT prospective cohort of the Bordeaux University Hospital included 74 patients treated in the acute phase of the disease between 2009 and 2019. When no life-threatening organ damage was observed ('uncomplicated MHT'), patients received an oral titration of