



Research Paper

The burden of managing anticoagulants in old patients suffering from coronavirus disease 2019. A case report and review of the literature.

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Abstract :

Background: Old patients are at risk of experiencing adverse drug events. The risk of morbidity and mortality enhances especially in cases of acute infections. Controversy exists regarding the potential of anticoagulation to reduce mortality and incidence of thrombo embolic events in coronavirus disease 2019 patients. In addition, prescription of anticoagulation is not without its risks of bleeding and must be optimized on geriatric population.

Case report : We report a case of a 80-years old female who presented a Severe Acute Respiratory Syndrome-coronavirus 2. We discuss through this case The burden of managing anticoagulants in old patients suffering from Severe Acute Respiratory Syndrome-coronavirus 2.

Conclusion : prescription of anticoagulants must be optimized on geriatric population because health care delivery is not infallible. More researchs are needed to improve the outcome of old patients suffering from Severe Acute Respiratory Syndrome-coronavirus 2.

Keywords: old patients, anticoagulants, coronavirus disease 2019, Acute Medical Unit.

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I. BACKGROUND :

Since the end of 2019, the Severe Acute Respiratory Syndrome-coronavirus 2 (SARS-Cov-2) pandemic exposes old patients to the risk of early death [1]. Even if the pandemic started several months ago, the management of severe disease still difficult and new discoveries appear often. One of the most common clinical findings in SARS-Cov-2 patients is the occurrence of Both venous and arterial thrombotic complications leading to poorer outcomes [2,3]. Controversy exists regarding the potential of anticoagulation to reduce mortality and incidence of thrombo embolic events in coronavirus disease 2019 (COVID-19) patients [3]. It is well known that anticoagulation is not without its risks of bleeding and is therefore a therapy that requires close clinical monitoring. The majority of bleeding events were reported to be on therapeutic anticoagulation [4]. We use a clinical case to discuss the difficulty of managing anticoagulants in a 80-year-old woman suffering from SARS-Cov-2.

II. PRESENTATION OF CASE :

A 80-year-old woman was admitted to our Acute Medical Unit because of confusion and dyspnea during the pandemic of COVID-19. She was oriented and did not have any cognitive disorders before. The patient did not take any drugs at home. She was frail, not autonomous, undernourished, had a low weight 50 Kg with pressure ulcer and a severe form of COVID-19. Her temperature was 37°C. Her respiratory rate was 28 breaths per minute, the oxygen saturation was 69 % while she was breathing ambient air and 94% while the patient was receiving supplemental oxygen through a reservoir mask at a rate of 15 liters per minute. Her blood pressure

was 12/7 mm Hg, the electrocardiogram showed only a regular tachycardia at 90 beats per minute, QT interval was 459 ms. Nucleic acid testing of a nasopharyngeal swab was positive for SARS-CoV-2. Other test results are shown in Table I. Non-contrast chest computed tomography showed at admission ground-glass opacities of peripheral subpleural location, associated with multiple areas of consolidation in posterior segments of both lower lobes, crazy paving, left scissural and pericardial effusion with 50% lung damage (figure 1). The patient received supplemental oxygen with a reservoir mask at a rate of 15 liters per minute, with azithromycin, Ceftriaxone, methylprednisolone, nutritional support, vitamin and trace elements, furosemide. We prescribed also first low molecular weight heparin (LMWH) with preventive dose: 0,4 mg of enoxaparine per day. Threedays later the dyspnea has improved and the patient became eupneic, the oxygen saturation was 95% while the patient was receiving supplemental oxygen through a nasal cannula at a rate of 2 liters per minute. She was well oriented in time and space. The echocardiography find a right ventricular dilation, low filling pressure and normal left ventricular systolic function. Furosemide was stopped. But, On the 4th hospital day, the patient developed an hematoma in the upper extremity so anticoagulants were stopped (figure 2, 3, 4). On the 8th hospital day, she presented high D-dimers with bilateral proximal pulmonary embolism (figure 5). Our patient received so curative dose of enoxaparine 0,5mg x 2 per day even if she had thrombopenia and hematoma. Careful monitoring was essential. Nextdays, the patient presented many complications : nosocomial infections, electrolytes disturbances, undernutrition with worsening of her pressure ulcer. The hematoma of upper extremity became larger but without inflammatory nor compressive signs. Platelets varied between 114000 per microl and 144000 per microl. Finally she presented a refractory shock. The echocardiography done on the 24 th hospital day found a normal left ventricular systolic function, without signs of cardiac impacts of pulmonary embolism. Septic shock was very probable. It might be also an hemorrhagic shock because Hemoglobin has dropped at 8.7 g/dl. The patient died 25 days after her admission.

III. DISCUSSION :

Geriatric syndromes, frailty, falls, and dependence increase the risk to morbidity and mortality due to SARS-CoV-2 of old patients [1]. This group of individuals have particularly, an age-related increased risk of thrombosis [5]. The profound hypoxia as well as the immobilized state of these patients as well as severe inflammatory state has been thought to contribute to hypercoagulable state [6]. Most clinicians recommended LMWH as anticoagulants of choice [6]. In COVID-19 infection proinflammatory cytokines are elevated and LMWH may have also an other interest due to their anti-inflammatory properties [4,7]. The debate continue about the prescription of the optimal dose of anticoagulants [8]. It is suggested that the thrombotic risk level can be defined according to age, comorbidities, severity of COVID-19, the body mass index and hemostasis variables at least every 48 h: platelet count, prothrombin time, activated partial thromboplastin time, fibrinogen, and D-dimer levels [8]. anti-Xa should be tested and monitored in cases of extremes of weight, mild and moderate renal dysfunction, in patients receiving increased doses of LMWH and in old patients [2]. But it was not practicable in our hospital. Heparin-induced thrombocytopenia is a rare, iatrogenic disease characterised by its potential severity, mainly related to thrombosis, and by difficulties regarding its diagnosis and management of affected patients [9]. The discovery of a platelet count $< 100 \text{ G.L}^{-1}$ or a decline in the platelet count $> 50\%$ compared to an anterior value allows the diagnosis [9]. In intensive care patients, other causes of isolated thrombocytopenia are possible like sepsis, haemorrhages, massive transfusions, post operative period and extracorporeal circuits [10]. Patients with COVID-19 can present thrombocytopenia which enhances risk of in-hospital mortality (10). Our patient presented both bleeding and thromboembolic complications with thrombocytopenia. But the vital prognosis prevails and the prescription of anticoagulants was necessary to treat pulmonary embolism. To improve anticoagulants management, careful Clinical judgment associated with biological monitoring are essential. A multidisciplinary approach with pharmacists mediating with the medical team should be implemented to prevent drugs events. Well designed epidemiologic studies and randomized clinical trials are urgently needed to address the use of anticoagulation in this population.

IV. CONCLUSION

prescription of anticoagulants must be optimized on geriatric population because health care delivery is not infallible. More researchs are needed to improve the outcome of old patients suffering from SARS-Cov-2.

Declarations of interest: none. Authors disclose that they have no potential conflicts of interest. Authors also ensure that they have no potential financial and non financial conflicts of interest.

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Table I : Laboratory data

Variables	Reference range	On admission	On the 24 th hospitalday,
White- cell count (10 ³ per microl)	4-10	16.29	4.65
Neutrophils (10 ³ per microl)	1.5-7	15.04	3.75
Lymphocytes (10 ³ per microl)	1-4	3	0.54
Eosinophils (10 ³ per microl)	0.1-0.4	0	0.03
Hemoglobin (g/dl)	11.5-15.5	13.9	8.7
Platelet count (10 ³ per microl)	150-400	114	144
Sodium (mEq/l)	135-145	133	135
Potassium (mEq/l)	3.5-5.1	4.6	3.6
Chloride (mEq/l)	98-107	96	96
Carbondioxide (mEq /l)	22-31	26	18
Ureanitrogen (g/l)	0.15-0.55	0.63	0.38
Creatinine (mg/l)	5.7-12.5	5.7	4.8
Glucose (g/l)	0.7-1.10	1.12	1.92
Protein (g/l)	64-83	53	36
C-reactiveprotein (mg/l)	<5		236.47
Lactate deshydrogenase (UI/l)	125-220	569	
Alanine aminotransferase (UI/l)	0-55	10	19
Aspartateaminotransferase (UI/l)	5-34	23	28
Alkaline phosphatase (UI/l)	40-150		164
Ferritin (ng/ml)	4-204	416	
D-dimer (microg/ml)	< 0,5		0.87
Fibrinogène (g/l)	2-4	5,2	2.1
TP (%)	70-100	84	
TCA patient/TCA témoin	< 1.2	1	
BNP (pg/ml)	< 100	875.5	
Troponine ultrasensible (ng/ml)	20-300	0.016	
Magnesium (mg/l)	16-26		14
Phosphore (mg/l)	23-47		32

Figure 1. Non-contrast chest computed tomography at admission with ground-glass opacities of peripheral subpleural location, associated with multiple areas of consolidation in posterior segments of both lower lobes, crazy paving, left pleural effusion. Corads 5.

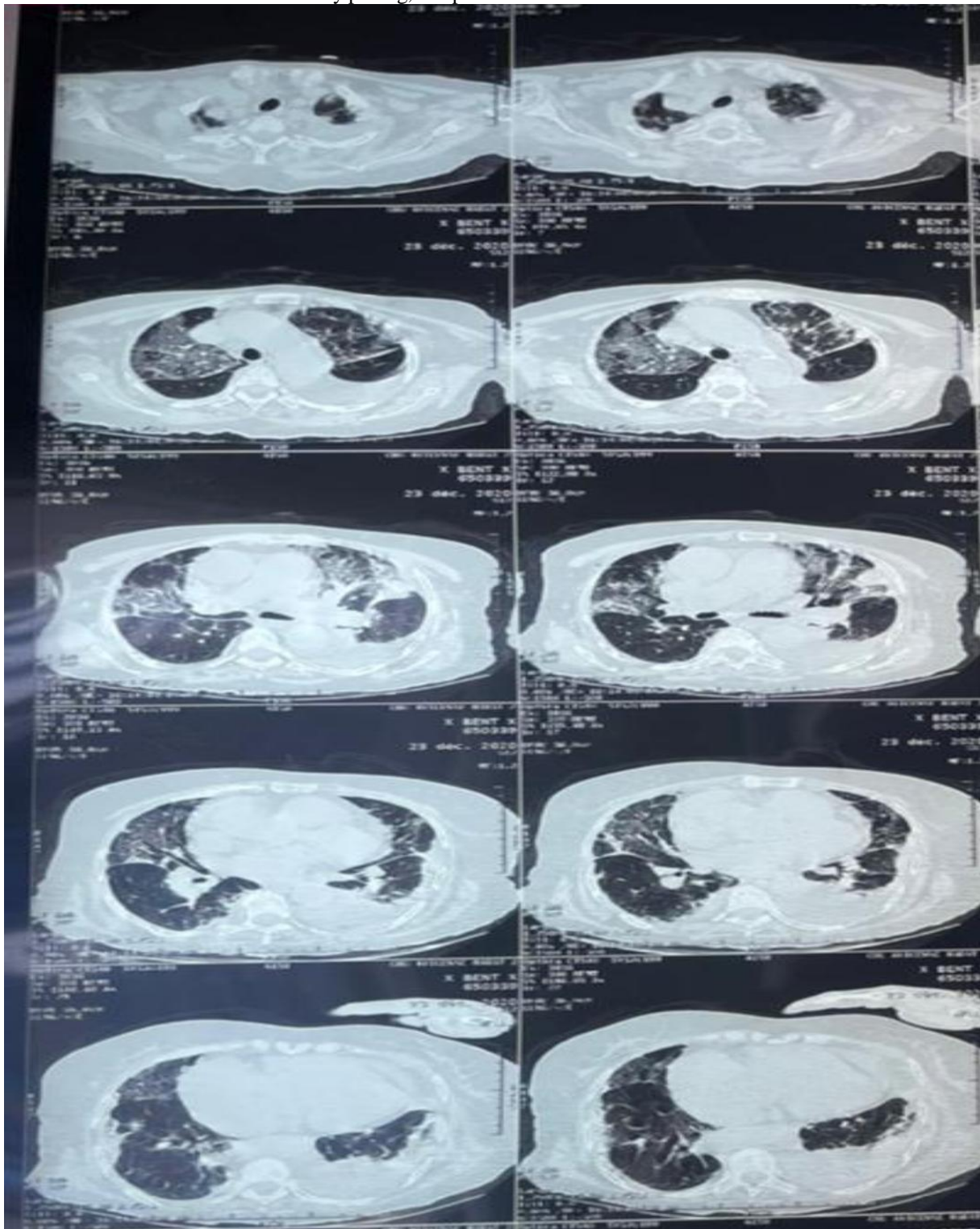


Figure 2 and 3. Bruise and oedema in the right upper extremity.



Figure 4. Echodoppler : indicated right biceps brachii hematoma



Figure 5. Computed tomographic pulmonary angiography of the chest performed after the administration of intravenous contrast material, showed bilateral pulmonary embolism with left atelectasis and left pleural effusion.

