

## Cave CANEM! Management of in “CID” ENTAL Sepsis

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**Background:** The pathogenesis of sepsis is linked to abnormalities in the coagulation process, which can progress to disseminated intravascular coagulation (DIC). This complication is triggered by an abnormal inflammatory response to an infectious agent which leads to the massive production of inflammatory mediators, increasing exposure to pro-coagulant factors and decreasing the expression of anticoagulant factors, such as antithrombin.

**Case History:** A 68 y.o Caucasian woman arrived at the emergency department complaining of abdominal pain and diarrhea. Urosepsis (SOFA score: 11) caused by an ESBL-producing *E. coli* strain was confirmed through clinical, instrumental, and laboratory examinations (Table 1). So, the patient was started on Meropenem, associated with substitution therapy consisting of concentrated human ATIII and repeated transfusions of platelet concentrate and fresh frozen plasma. Over the following days, patient’s conditions improved also thanks to the normalization of coagulation parameters.

**Discussion:** Sepsis is a time-dependent disease that can affect multiple organs and systems. ATIII consumption is one of the earliest signs of DIC and is useful in evaluating sepsis prognosis alongside other validated biomarkers [1]. Furthermore, ATIII deficiency can predict the development of sepsis-induced AKI. For this purpose, the ATIII/creatinine ratio was developed: low ATIII levels are associated with increased creatinine values and indicate a worse prognosis [2].

Never use acronyms unless previously identified

**Table 1: Laboratory Results**

	1G/04 (access in ed)	20/04 (admission in IM unit)	22/04	25/04	01/05	06/05 (discharge)
WBC - N (x10 <sup>3</sup> /μL)	18.5 (16.8)	19.8 (19.1)	15.3 (14.5)	14.8 (14)	9.5 (7.7)	5.9 (4)
Hb (g/dL)	12.9	10.7	8.9	6.8 (RBC transfusion)	9.8	10.2
PLT (x10 <sup>3</sup> /μL)	14	10 (start platelet concentrate e FFP infusion)	6	26	152 (stop platelet concentrate e FFP infusion)	233
Urea (mg/dL)	171	191	219	96	26	21
Creatinine (mg/dL)	3.8	3.55	3.59	1.25	0.66	0.68
CRP (mg/L)	183	124	128	85	15	9
Fibrinogen (mg/dL)	1056	850	612	355	123	87

PT-INR	1.46	1.48	1.52	1.42	1.25	1.43
ATIII (activity in %)	-	-	45 (start ATIII infusion)	115 (stop ATIII infusion)	142	-

**References**

1. Setarehaseman A, Mohammadi A, Maitta RW (2025) Thrombocytopenia in Sepsis. Life (Basel) 15: 274.
2. Xie Y, Tian R, Jin W, Xie H, Du J, et al. (2020) Antithrombin III expression predicts acute kidney injury in elderly patients with sepsis. Exp Ther Med 19: 1024-1032.

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