Early Administration of Remdesivir is Associated with Lower Risk of ICU Admission in Hospitalized Patients with COVID-19

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Multicentric study in 9 Spanish hospitals

- Retrospective analyses of 359 patients receiving remdesivir during November 2020

- Variables independently associated with ICU admission (at least 48h after RDV exposure) were evaluated using Cox-regression analysis.

Criteria for remdesivir elegibility

- Aged ≥18y and >40 kg
- Need of supplemental low-flow oxygen
- ≤7 days from symptoms onset
- At least 2 from
  - respiratory rate (RR) ≥24 bpm
  - oxygen saturation (SaO_2) ≤94%
  - PaO2/FiO2<300 mmHg

Table. Characteristics of patients categorized by the need of ICU admission and independent variables associated with ICU admission by Cox-regression analysis.

Variable	No ICU (N= 325)	ICU (N= 34)	P$^\$$	Univariable Cox-regression	Multivariable Cox-regression
				HR (95%CI); P	HR (95%CI); P
Age (y)*	61.7 (51.8-74.4)	69 (61.7-72.6)	0.142	1.01 (0.98-1.03); 0.519	
Male sex#	195 (60)	22 (64.7)	0.713	0.83 (0.41-1.68); 0.612	
Hypertension#	136 (41.8)	14 (41.2)	1		
Chronic heart diseases#	53 (16.3)	3 (9.1)	0.448		
Diabetes mellitus#	89 (27.6)	7 (20.6)	0.542		
COPD#	50 (15.5)	2 (5.9)	1		
Solid Neoplasia#	11 (3.4)	1 (2.9)	1		
Haematological neoplasia#	11 (3.4)	1 (2.9)	1		
Days from symptoms onset to hospitalization*	3.9 (2-5.4)	5 (2.5-6)	0.159	1.09 (0.93-1.28); 0.284	1.21 (0.00-1.47); 0.058
RR*	24 (24-25)	25 (24-28)	0.07	1.1 (1-1.2); 0.038	
%Sa02*	93 (01-94)	91.5 (90-94)	0.075	0.97 (0.91-1.03); 0.296	
C-RP (mg/dL) *	**7.1 (3.4-12.7)**	**10.3 (3.8-15.9)**	**0.096**	1.05 (1.01-1.09); 0.01	**1.05 (1.02-1.09); 0.004**
LDH (U/L) *	288 (233-370)	366 (253.5-461.5)	0.031	1 (1-1.01); 0.019	
Ratio N/L*	4.6 (3-7.7)	5.9 (3.6-10.2)	0.084	1.01 (0.99-1.04); 0.247	
D-dimer (ng/mL) *	468 (290-783)	420 (319-710)	0.874		
Creatinine (mg/dL) *	0.8 (0.7-1)	0.9 (0.7-1)	0.574		
SEIMC score*	6 (3-10)	7 (6-8)	0.039	0.99 (0.93-1.06); 0.874	
Days from hospitalization to RDV*	**0.83 (0.29-1.33)**	**0.88 (0.5-1.63)**	**0.271**	1.09 (0.87-1.37); 0.467	**1.38 (1.01-1.88); 0.044**
Steroids#	303 (95)	33 (100)	0.381		
Other AI (> 48h before ICU) #	112 (36.8)	11 (33.3)	0.849		
ICU mortality#	--	12 (35.3)	--		
Mortality 30 days#	29 (8.9)	5 (14.7)	0.349		

Bolded rows mark the statistically significant results.

COPD: chronic obstructive pulmonary disease. Ratio N/L: neutrophil/lymphocyte. AI: anti-inflammatory agents.

*Median (IQR)

N (%)

$^\$$ Chi-square or Fisher's test and Mann-Whitney or t-Student for categorial and quantitative variables, respectively

Conclusions

- In hospitalized patients with COVID-19, delay in the administration of RDV increases 38% the risk of ICU admission

- High SEIMC score (age, sex, $Sa0_2$, ratio N/L, estimated glomerular filtration, and dyspnea) was also asociated with ICU admission