Comparative analysis between Polymerized Type I Collagen and Baricitinib as a potential treatment for COVID-19

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Background

Baricitinib is a treatment authorized by the FDA for the treatment of moderate to severe COVID-19, despite this there are few approved drugs; polymerized type I collagen (PTIC) is a drug that has been used in Mexico with great potential for treating moderate to severe cases of COVID-19.

Methods

Comparative, descriptive and retrospective analysis of two populations of adult patients affected by COVID-19 confirmed by antigen test or RT-PCR as well as CO-RADS 6 CT, who consented to be treated between 2020 and 2021, a population using oral baricitinib at a dose of 4mg/day/14 days and another using polymerized type I collagen intramuscularly at a dose of 1.5ml every 12 hours for 3 days, followed by 1.5ml every 24 hours for 4 days; The most affected age and gender, comorbidities and laboratory abnormalities are analyzed, as well as improvement in inflammatory and oxygenation indices measured by pulse oximetry and SAFI (SpO2/FiO2), finally the outcome of the patients and the presence of adverse events.

Results

80 patients for each group, the most affected gender was male; the average age in the PTIC group was 51 years and in the baricitinib group it was 56 years; the main comorbidities were obesity, diabetes and hypertension in both groups; the decrease in acute phase reactants such as CRP, D-dimer and ferritin was greater in the PTIC group compared to the baricitinib group, the latter drug requiring a regimen of more days to achieve the objectives of the first drug (PTIC 7 days and baricitinib 14 days); Similarly, in oxygenation measured, the PTIC group reached goals in less time compared to the baricitinib group, which required twice as many days of treatment to achieve adequate oxygenation; Regarding the outcomes, there was a higher mortality in the baricitinib group compared to the PTIC group (6.25% vs 3.75%). Regarding adverse events reported for the PTIC group, they were minor and related to the intramuscular administration of the drug in 7 patients, while in the baricitinib group, 5 patients were reported with added bacterial pneumonia

Conclusion

Polymerized type I collagen has anti-inflammatory and immunomodulatory potential similar to baricitinib in cases of moderate to severe COVID-19, even reaching treatment goals in less time both in inflammatory indices and in oxygenation indices

Variable	Polymerized Type I Collagen n = 80	Baricitinib n = 80	p
Demographic variables			
Gender			
Women	30	28	0.020
Men	50	52	0.021
Age, years	51	56	0.001
Previous comorbidities			
Hypertension	78%	67%	0.012
Diabetes	61%	77%	0.012
Obesity	60%	62%	0.010
Laboratory data			
Baseline D-dimer	1200ng/ml	1389ng/ml	0.001
D-dimer 7 days	455ng/ml	776ng/ml	0.001
D-dimer 14 days	---	488ng/ml	
Basal ferritin	990ng/ml	1488ng/ml	0.001
Ferritin 7 days	384ng/ml	922ng/ml	0.001
Ferritin 14 days	---	330ng/ml	
Baseline c-reactive protein	14mg/dl	12mg/dl	0.001
CRP 7 days	3.6mg/dl	5.6mg/dl	0.001
CRP 14 days	---	3mg/dl	
Oxygen saturation			
Baseline (Day 0)	86%	84%	0.001
7 days of treatment	94%	90%	0.001
14 days of treatment	---	96%	
Baseline SAPI (SpO2/FiO2)	132	135	0.001
SAFI 7 days	320	220	0.001
SAFI 14 days	---	350	
Outcomes			
Improvement	77	75	0.001
Death	3	5	0.001
Mortality	3.75%	6.25%	0.001
Adverse events	Application site pain: 7	Bacterial pneumonia: 5	