



ERS

EUROPEAN RESPIRATORY SOCIETY
INTERNATIONAL CONGRESS 2023
MILAN Italy, 9-13 September

Antiviral and anti-inflammatory effects of Erdosteine and MET-1 in SARS-CoV-2 in vitro infection

S. Strizzi (Milan, Italy), F. Danzo (Milan, Italy), C. Vanetti (Milan, Italy), M. Biasin (Milan, Italy), D. Radovanovic (Milan, Italy), D. Trabattoni (Milan, Italy), P. Santus (Milan, Italy)

Background

The decrease in the antioxidant Glutathione (GSH) content characterizes several viral infections and different molecules have been proposed to restore or increase GSH levels. Among these, Erdosteine and its active metabolite MET-1 seem to have a rationale in the treatment of patients affected by respiratory viruses as SARS-CoV-2.

Aims

The main objective of this study was to evaluate effects of Erdosteine and MET-1 in SARS-CoV-2 infection.

Methods

Viral infection assay on A549 cell line has been set up adding Erdosteine or MET-1 at different doses (100 and 1000mg/mL) before and after infection with SARS-CoV-2 (lineage B.1) at a concentration of 1,26 TCID₅₀/μL. Viral replication in culture supernatant was assessed by qPCR method at 48h post-infection (hpi). Finally, inflammatory and anti-inflammatory cytokine/chemokine production was analysed in cell culture supernatants by a Multiplex Immunoassay.

Results

Post-treatment with 1000μg/mL of MET-1 showed a statistically significant antiviral effect ($p=0.006$) against SARS-CoV-2. Furthermore, it has been reported a statistically significant reduction in IL-6 and IL-8 (E1000: $p=0.03$), IFN-gamma (E1000 and M1000: $p>0.001$), MCP-1 (E1000: $p>0.001$), and MIP-1beta (E1000 and M1000: $p<0.01$) production. No significant effects were observed in pre-treatment condition with both Erdosteine or MET-1.

Conclusions

Erdosteine active metabolite (MET-1) has proven to have an antiviral effect, thus confirming the possibility to use this compound as an adjuvant agent against SARS-CoV-2. Further analysis is planned in order to understand the transcriptomic response of cells to the drugs and to evaluate the antiviral effect on other viruses, such as H1N1.