

Host epigenetic methylation stabilization using folic acid for prophylaxis against COVID-19 infection among health care workers: A bridge or an alternative to vaccination.

Ahmed Farag 1, Nadia Hafez Ouda 2, Reham A Dwedar 2

1 General Surgery Department, Kasr Alainy University Hospital, Faculty of Medicine, Cairo University.

2 Human Bacteriology and Immunology, Faculty of Medicine, Cairo University.



Abstract

Background:

Although the most important pharmacologic interventions to prevent SARS-CoV-2 infection are likely to be vaccines, the repurposing of established drugs for short-term prophylaxis is another, more immediate option. This study was aimed to assess the use of folic acid daily oral intake in addition to standard PPE, hydroxychloroquine and other sanitary precautions against COVID-19 infection in health care workers.

Methods: This was a cluster randomized controlled study of 3 groups of nurses: group I was the control group, group II received 500 micrograms of folic acid, and group III received 1000 micrograms of folic acid. PCR conversion was tested by a blinded observer for the patient grouping as a primary endpoint. This was a single-centre study at a new teaching hospital, Cairo University. The nurses of both sexes who were recruited to treat COVID-19 patients for 2 weeks were employed in 3 waves starting on June 1, 2020, until July 15, 2020. The main intervention was the administration of 500 micrograms and 1000 micrograms of folic acid to nurses caring for COVID-19 patients.

Results:

In total, 526 health care personnel were eligible, and PCR was performed at baseline. Group I comprised 139 patients, group II comprised 163 patients, and group III comprised 224. Comparison of the age and sex among the 3 groups showed no significant difference. The rates of PCR conversion from negative to positive were 4.9% (8/163) in group II and

1.8% in group III (4/220) compared with 14.4% in the control group I (20/139). Statistically significant ($p < 0.005$) and highly statistically significant ($p < 0.001$) differences were found.

Conclusions: Adding oral folic acid showed a statistically significant reduction in PCR conversion from negative to positive for health care workers nursing COVID-19 patients compared with that in the control group.

Keywords—COVID19, Folic Acid, Prophylaxis, Epigenetics

Professional Biography

Ahmed Farag has completed his PhD at the age of 30 years from Cambridge University and postdoctoral studies from Stanford University School of Medicine. He/She is the director of Ahmed Farag a premier Bio-Soft service organization. He has published more than 25 papers in reputed journals and has been serving as an editorial board member of repute.

farag2a@gmail.com