Article

2-deoxy-D-glucose (2-DG): Hope for us

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Abstract:

2-deoxy-D-glucose (2-DG) is a glucose moiety having 2 hydroxyl group replaced by hydrogen that can inhibit increased glycolytic flux &some other metabolic process of viral replication. The treatment of viral infection is very challenging due to intricate structure & metabolism of viruses. The 2-deoxy-D-glucose (2-DG) in SARS-COV-2 infection induces glycolysis, impairs mitochondrial function damages infected cells.

Keys Words: 2-deoxy-D-glucose, SARS-COV-2, Covid-19, virus

Introduction:

2-DG is a glucose moiety. Chemically it has 2-hydroxyl group replaced by hydrogen. Due to the presence of 2-hydroxyl group, the moiety can't able to undergo subsequent hydrolysis process. On May 8, 2021, Drug Controller General of India (DCGI) has approved the emergency use of 2-deoxy-D-glucose (2-DG), a drug developed by INMAS, a DRDO lab, in collaboration with Dr. Reddy's Laboratories (DRL), Hyderabad[1]. Both the institution has stated in a press conference by claiming that 2-DG will help the faster recovery of hospitalised patients and will reduce the need for supplemental oxygen[2]. By dissolving in water, 2-DG is administered orally and works by getting into the virus-infected cells. By doing so, 2-DG stops viral production and stops the growth of the coronavirus[3].The COVID pandemic and its possible treatment approaches have been discussed a lot since its outbreak[4-8]. The finding of reported articles or research papers on 2-DG in COVID is disappointing as it has very less numbers. A last year research article focused on the *in silico* docking and molecular simulations2-Deoxy-D-Glucose and its derivative, considering them as potential candidate for COVID-19[9]. There are 7 articles in 2020 and 5 articles in 2021 as per National Library of Medicine-NLM (PubMed.gov) while searching the term "2-deoxy-D-glucose" and "COVID". We are expecting more numbers of case report with 2-deoxy-D-glucose so that possible derivatives and their medical approach can be scientifically evaluated. 2-deoxy-D-glucose should be a positive hope and a potent candidate to defeat this pandemic.

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