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Hydroxychloroquine And Dexamethasone Are Both Possible For Treatment Of Covid-19

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Abstract : The antimalarial operators chloroquine and hydroxychloroquine have been utilized generally for the treatment of rheumatoid joint inflammation and fundamental lupus erythematosus. These mixes lead to progress of clinical and research facility parameters, however their moderate beginning of activity recognizes them from glucocorticoids and nonsteroidal mitigating operators. Chloroquine and hydroxychloroquine increment pH inside intracellular vacuoles and adjust procedures, for example, protein corruption by acidic hydrolases in the lysosome, get together of macromolecules in the endosomes, and posttranslation change of proteins in the Golgi mechanical assembly. It is suggested that the antirheumatic properties of these mixes results from their obstruction with "antigen preparing" in macrophages and other antigen-introducing cells. Acidic cytoplasmic compartments are required for the antigenic protein to be processed and for the peptides to collect with the alpha and beta chains of MHC class II proteins. Thus, antimalarials reduce the arrangement of peptide-MHC protein edifices required to animate CD4+ T cells and result in down-guideline of the safe reaction against autoantigenic peptides. Since this system varies from other antirheumatic drugs, antimalarials are appropriate to supplement these different mixes in blend medicate treatment[1].

Keywords : Covid-19, Coronavirus, Hydroxychloroquine, Dexamethasone, Treatment.

Introduction

Hydroxychloroquine (ClsH26CIN30) and chloroquine, the two 4-aminoquinolones regularly endorsed for treatment in rheumatic ailments , are gotten from the bark of the Peruvian cinchocha tree. Alongside quinacrine, the two aminoquilones are named antimalarials after their long history in the treatment of that infection , featured by Pelletier and Caventou's detachment of quinine and cinchonine as dynamic antimalarial specialists in 1820. Quinacrine, however not an aminoquinolone, conveys inside it the imbedded structure of

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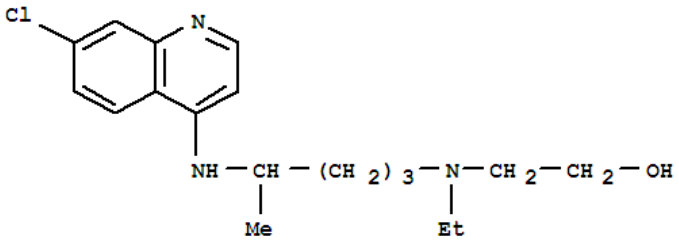
chloroquine. The first production utilizing aminoquinolone subordinate treatment in quite a while occurred in 1929 with the utilization of qu inine to treat fundamental lupus erythematosus [2]. A 1951 article by Page noticed the viability of antimalarials in the treatment of both foundational lupus erythematosus (SLE) and rheumatoid joint pain (RA) [3], and all the more as of late the utilization of antimalarials has been stretched out to a wide scope of connective tissue illness s including dermatomyositis [4], palindromic stiffness [5], adolescent beginning SLE [6], eosinophilic fasciitis [7] and osteoarthritis (OA) [8]. While the adequacy of aminoquinolones in the treatment of connective tissue sicknesses has been surpassed by different medications, hydroxychloroquine has stayed a significant component in the treatment munitions stockpile for two reasons. Right off the bat for its general absence of danger when contrasted with other antirheumatic drugs, and also on the grounds that its system of activity is not quite the same as that of most different DMARDs, hydroxychloroquine can successfully be utilized in mix treatment.

Mechanism of action

The essential instrument of activity of 4-aminoquinolones is intervened by protonation of these frail bases inside the lysosome, in this manner expanding the general intra-lysosomal pH. The raised pH of the lysosome disturbs antigen preparing and prompts diminished instigating biochemical changes which are related with morphological changes in the Golgi complex .incitement of T cells, diminished granulocyte movement, decline cytokine creation, and downregulation of the immune system reaction . Hydroxychloroquine influences platelet enactment in SLE related enemy of phospholipid disorder, an outcome which may happen through restraint of the statement of platelet surface markers, for example, GPIIblIIIa . [9] In SLE, hydroxychloroquine hinders in vivo apoptosis. [10]



Figure(1) chemical structure of Hydroxychloroquine.

Aminoquinolones are racemic blends that don't appear to show any chiral reversal, however the racemates are not cleared at a similar rate. Hydroxychloroquine is processed sound system specifically and ties to proteins sound system specifically. The distinctions in real life of the stereoisomers, in the event that they exist, are obscure . [11]Despite the fact that the antimalarials are fundamentally the same as in structure, the in vivo systems of hydroxychloroquine, chloroquine, and quinacrine may vary essentially. Quinacrine, and somewhat chloroquine, repress lipopolysaccharide (LPS)- incited articulation of Il-1~ and TNF-u. Each of the three antimalarial mixes help limit the union of prostaglandins through restraint of phospholipase, which thusly hinders arachidonate corrosive discharge and eicosanoid development. The antimalarial drugs restrain atomic occasions in DNA through the authoritative of the quinoline ring to the nucleotide bases of DNA . [12] Antimalarials may likewise meddle with the Golgi complex by obstructing the proteolytic transformation of secretary protein antecedents, for example, professional C3, along these lines hindering protein emission and the intracellular handling of proteins, instigating biochemical changes which are related with morphological changes in the Golgi complex. [13]

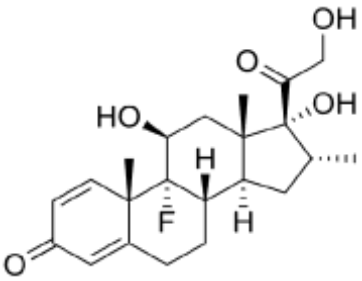
Dexamethasone

Medical Definition of *dexamethasone*

: a synthetic glucocorticoid $C_{22}H_{29}FO_5$ also used in the form of its acetate $C_{24}H_{31}FO_6$ or sodium phosphate $C_{22}H_{28}FNa_2O_8P$ especially as an anti-inflammatory and antiallergic agent.

Mechanism of action

Dexamethasone is a synthetic (man-made) corticosteroid. Corticosteroids are naturally-occurring chemicals produced by the adrenal glands located above the kidneys. Corticosteroids affect the function of many cells within the body and suppress the immune system. Corticosteroids also block inflammation and are used in a wide variety of inflammatory diseases affecting many organs. The FDA approved dexamethasone in October 1958. [14]



Figure(2) chemical structure of dexamethasone

Conclusion

Through the mechanism of medication, we can conclude that hydroxychloroquine can be used to treat diseases caused by the covid-19 by hydroxychloroquine sticking to the virus after the incubation period of the virus inside the lungs and preventing the covid-19 virus from splitting within the Alveoli. Studies by doctors show that the covid-19 virus causes many symptoms of it, the most important of which is respiratory difficulty, and that hydroxychloroquine is safe and can be used to treat many diseases through a drug-working mechanism, it is safe to use in treating the covid-19 virus.

To treat other symptoms caused by the COVID-19 virus, we recommend you test Dexamethasone with hydroxychloroquin to treat other symptoms caused by the COVID-19 virus that are difficult to breathe, by giving hydroxychloroquin to prevent the spread of COVID-19 and with Dexamethasone to help the patient breathe by preventing pneumonia inside the lungs.

As we konw that the Dexamethasone drug has used to treatment pnoumonia in Malaria patients and its role in decrease a number of deaths. Deska can help to cure pnoumonia that cuased by coronsviruse by inhibition inflamatory factors.

This is our point of view regarding the mechanics of the two medicines' work, pending the clinical trials that doctors will perform after reading this paper.

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