

NF-KB: A Key Transcription Factor in Cytokine Storm of Patients with COVID

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ABSTRACT

SARS- COVID2 is a current global pandemic infectious disease caused by corona virus affecting mankind worldwide. Surface antigenic glycoprotein present on the virus recognized by PRR(Pattern recognition receptors) belongs to TLR activate NF-KB a key transcription factor, deregulated NF-KB, a key transcription factor involved in activation of inflammatory mediators responsible for cytokine storm involved in lung damage, pulmonary thrombosis, pulmonary fibrosis, and severe acute respiratory distress syndrome, later leads to death. This article brief about the role of NF-KB, a key transcription factor in cytokine storm of patients with SARS-COVID 2.

Keywords: IL-1, IL-6, TNF- α , ikB, SARS, UPA, Mmp's

INTRODUCTION

SARS-COVID2 is a global pandemic infectious disease caused by corona virus has an affinity to bind to ACE receptors present on the lungs. NF-KB is a ubiquitous transcription factor present in cytosol of every cell. NF-KB a key transcription factor controls more than 500 genes. NF-KB a key transcription factor normally in an inactive state by I κ B (inhibitory kappa beta) factor, when activation degradation of I κ B occurs [1-6].

NF-KB: A KEY TRANSCRIPTION FACTOR IN CYTOKINE STORM

Activation of NF-KB by surface antigenic glycoprotein of corona virus results in NF-KB binding to DNA by shifting the NF-KB a key transcription factor from cytosol to nucleus leads to transcription of inflammatory mediators [7-9]. Deregulated NF-KB activation results in release of inflammatory mediators responsible for cytokine storm from chronic inflammatory cells such as neutrophils, macrophages, and mast cells release cytokines (IL-1, TNF- α , IL-6, TGF- β), free radicals (ROS, RNS), proteolytic enzymes (UPA, Mmp's 2,9), chronic inflammation (IL-1, TNF- α , IL-6), angiogenesis (IL-8, COX-2, HIF-1 α), immune modulation by (IL10, IL-4, IL-5, IL-13) involved in lung damage, pulmonary fibrosis, pneumonia, pulmonary thrombosis, and Severe Acute respiratory distress syndrome (SARS) then later death. Cytokine storm in SARS-COVID patients is mainly by NF-KB key transcription factor activation is graded in to mild, moderate, and severe responsible for disease severity causes lung alveoli damage,

pneumonia, severe acute respiratory disease, acts as a therapeutic target and prognostic marker [10-16].

CONCLUSION

NF-KB, a key transcription factors a ubiquitous transcription factor activated by surface glycoprotein present on the corona virus. NF-KB, a key transcription factor activates inflammatory mediators such as cytokines, growth factors, and proteolytic enzymes involved in lung damage. Thorough understanding of NF-KB transcription factor activation and it's mechanisms of actions in patients with SARS-COVID2 helpful for therapeutic target and prognostic marker.

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