ELEVATED SERUM COMPLEMENT (C3/C4) LEVEL AS AN INFLAMMATORY MARKER FOR INFECTION IN PATIENTS WITH FEVER: A RETROSPECTIVE STUDY

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Background: The functions of the complement system are to protect the host against infection, clearance of immune complexes, and regulate adaptive immunity after activation by C-reactive protein (CRP) or foreign cells. C3 and C4 may increase up to 50 percent of baseline values as part of the acute-phase response, which is an expected host response for infection and injury.

Objectives: We aimed to examine the correlation between elevated C3/C4 levels and the underlying causes (infectious vs. non-infectious) of fever (subjective and/ or objective) in adults admitted to Community Regional Medical Center (CRMC).

Methods: This is a retrospective study of C3/C4 level that was ordered in adult patients who were admitted to CRMC in April 1st, 2018 to September 30th, 2018 with fever. This was also analyzed in comparison to elevated lactic acid, erythrocyte sedimentation rate (ESR), and CRP level.

Results: Complement levels were ordered in 210 patients admitted to CRMC medical or intensive care units. Among these patients, 28.09% (59/210) were diagnosed with various infectious diseases confirmed by gold standard methods (cultures, serology tests, computerized tomography, or magnetic resonance imaging), regardless of fever status during admission.

About 26.6% (56/210) had subjective or objective temperature greater than 100.4°F for at least two of the 52 patients who had complement levels (C3/C4) ordered with resulted in either normal or elevated. Within these 52 patients, lactic acid, ESR, and CRP were ordered in 32, 28, 25 of them respectively.

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