

Summary of Publication

Primary Care • Infectious Disease

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General Practice | Infectious Diseases | Antibiotics | CRP

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The course of C-reactive protein response in untreated upper respiratory tract infection.

Hasse Melbye, et al. The course of C-reactive protein response in untreated upper respiratory tract infection. British Journal of General Practice, Volume 54: 653-658, 2004.

Rapid tests for C-reactive protein (CRP), an acute phase protein showing increased levels during infection and tissue damage, are widely used in primary care in the Nordic countries. A Swedish survey showed that CRP testing was performed in almost 50% of general practice patients diagnosed with a common cold. Since CRP values may also be increased during viral respiratory infections, there is a risk that antibiotics may be incorrectly prescribed. The aim of this study was to describe the course of the CRP response during untreated upper respiratory tract infections and associations between the development of CRP values, erythrocyte sedimentation rate (ESR) and respiratory symptoms. 44 subjects with symptoms of URTI for ≤ 3 days were recruited from GP offices in northern Norway (3 subjects were excluded due to various reasons). CRP and ESR analysis were performed on each

of the following days until day 7 of the illness and then on days 10, 14 and 21. Raised CRP values were found in the majority of the patients with viral infection and the highest values were found in those with influenza A and B infections. The CRP values reached a peak during days 2-4 in our study, and then fell rapidly over the following days.

Conclusion

High CRP values are frequently seen in bacterial infections, but elevated values are also seen in viral respiratory infections, and peak values have been demonstrated 2-4 days after viral challenge. A moderately elevated CRP value (10-60 mg/l) cannot support a diagnosis of bacterial infection when the illness has lasted less than 7 days but may indicate complication of viral infection after a week.

Comparison of C-Reactive Protein (CRP) and White Blood Cell (WBC)

- Both CRP and WBC are used as inflammatory/infection markers. CRP and WBC react differently over time and with different clinical conditions. WBC is rapidly increased at the onset of fever, whereas CRP peaks in ~2-4 days. Using both markers can increase detection of bacterial infections.¹⁻²
- Slightly increased CRP levels can be difficult to interpret and there are also non-bacterial diseases that might cause high CRP levels. This may mislead clinicians in the decision to prescribe antibiotics.¹
- A WBC count may be clinically relevant for other conditions than just infections/inflammations, e.g., suspected hematological malignancies, toxic marrow suppressions, unexplained and severe anemia.³

1. Melbye H et al. The course of C-reactive protein response in untreated upper respiratory tract infection. Br J Gen Pract. 2004 Sep;54(506):653-8.

2. Peltola et al. Discrepancy between total white blood cell counts and serum C-reactive protein levels in febrile children. Scandinavian Journal of Infectious Diseases. 2007; 39:560-565.

3. Laurells Klinisk Kemi i praktisk medicin (Laurell's Clinical Chemistry in Practical Chemistry), 2003, 8th edition.