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CRP as a marker for infection in diabetic foot ulcers

P.L.H. van Battum, L. Prompers, M. Huijberts
Maastricht University Medical Center + Maastricht, the Netherlands

Introduction: Diabetic foot disease is a feared complication of diabetes and is often accompanied by infection. Infection in diabetic foot disease can be limb threatening and is the mean reason for (major) amputation. However, classical clinical signs of infection often lack in this situation and markers of infection like c-reactive protein (CRP) may be of additional value. The aim of this study was to investigate whether CRP is a reliable marker of infection and/or its severity in patients with diabetic foot ulcers. **Methods and patients:** In the Eurodiale study, a prospective cohort study of 1232 patients presenting with a new diabetic foot ulcer, patients were followed on a monthly basis until healing, death, major amputation or up to a maximum of 1 year. Ulcers were treated according to international guidelines. The presence of infection was defined according to the PEDIS classification and the clinical impression of the treating physician. **Results:** In 669 subjects data were obtained on both PEDIS classification and CRP. In patients with infection (n = 416) CRP was normal in 33%, elevated < x 3 the upper limit of normal (ULN) in 23% and > 3 x ULN in 44%. In patients without infection these numbers were: 58%, 22% and 20% respectively. The positive predictive value (PPV) and negative predictive value (NPV) for CRP were 72.4% and 51.6% respectively. In patients with limb threatening infection according to the clinician (n = 106) CRP was normal in 24%, < 3 x ULN in 20% and > 3 x ULN in 56%. The PPV and NPV of CRP for the diagnosis of limb threatening infection were 31.9% and 90.9% respectively. In case of osteomyelitis(diagnosed by X-ray) (n = 144) CRP was normal in 27%, < 3 x ULN in 26% and > 3 x ULN in 47%. The PPV and NPV of CRP were 39.6% and 85.2% respectively. **Conclusion:** CRP is a poor diagnostic marker for the presence of infection, moreover CRP seems not to be of additional value in separating mild from severe infection. These data suggest that for the diagnosis of infection, and its severity, the clinician has to rely on clinical examination and, if necessary, imaging procedures.