

**Recalcitrant foot ulcer infections in mannan-binding lectin deficiency in people with diabetes mellitus**

Mikael Bitsch<sup>1</sup>, Line Iversen<sup>1</sup>, Per E Holstein<sup>1</sup>, Michael Christiansen<sup>2</sup>, Inga Laursen<sup>2</sup>, Anne-Marie Engel<sup>2</sup>

<sup>1</sup>Copenhagen Wound Healing Center, University of Copenhagen, Bispebjerg Hospital and <sup>2</sup>Statens Serum Institute, Copenhagen, Denmark.

**Background:** We have experienced that diabetic patients with poor response to standard treatment for foot ulcer and infection may express low serum mannan-binding lectin (MBL). MBL is a plasma protein of the innate immune system with the ability to initiate antimicrobial and inflammatory actions. MBL deficiency is common: about 10-15% of the Danish population can be classified as MBL deficient. The literature document that there are more patients with myocardial infarcts among diabetics with low MBL genotypes than in people with normal MBL. On the other hand another study show that a significantly larger proportion of patients with diabetic nephropathy presented a MBL genotype associated with higher MBL level, compared to the group with MBL genotypes associated with low MBL levels. The influence of MBL-deficiency on wound healing and infections has not previously been investigated.

**Patients and methods:** We measured MBL in 329 patients with diabetes and chronic foot ulcer. To determine MBL influence on wound healing and infection, 8 patients with diabetic foot ulcers and low plasma MBL (< 200ng/ml) were matched with 8 patients with diabetic foot ulcers and normal MBL

Results: For the diabetic population the serum MBL was median 1904 ng/ml, the four quartils were respectively: 487, 2815, 3000 and 3000 ng/ml. These figures do not differ from the background population. A prolonged and recurrent course of ulcer and infection was found in the matched group with low MBL. This difference could not be explained by other factors and a difference in the microbiology of the wounds in the two groups was not detected.

**Conclusion:** People with diabetes seem to have the similar pattern of serum MBL as the normal population, but a low serum MBL may seriously influence the course of foot ulcer infections.