

## **CD64 ON NEUTROPHIL GRANULOCYTES IS A POSSIBLE DIAGNOSTIC MARKER FOR EARLY AND SPECIFIC DIAGNOSIS OF SEVERE BACTERIAL INFECTIONS AFTER ON-PUMP CABG.**

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### **Objective**

To diagnose bacterial infections after surgery is challenging. Traditional laboratory diagnostics are difficult to interpret the first days postoperatively. During bacterial infection the expression of surface molecules on neutrophil granulocytes changes. The high affinity Fc $\gamma$  receptor I (CD64) is an important parameter and is shown to be a diagnostic marker in both adults and new-borns for early detection of bacterial infection. In uninfected individuals CD64 are expressed to a very low extent. Bacterial infections induces expression of CD64 in 70% or more of the neutrophils. Recent studies have shown that after surgery, such as hip replacement, there is only a slight increase in the CD64 expression. We studied the effect of extra corporal circulation on CD64.

### **Material and methods**

41 (34 male) patients scheduled for elective on-pump coronary artery by-pass grafting without clinical signs of recent or ongoing infection or inflammatory disease, with CRP < 5 mg/L, leukocyte count < 11.0 · 10<sup>9</sup>/L and not using NSAIDs or steroids preoperatively, were included. Expression of CD64 on neutrophil granulocytes was analysed by flow cytometry. Median age was 68 years (range 38-79 years). Median cutting time was 169 minutes (range 94-264 minutes), median extracorporeal circulation time 82 minutes (range 38-172 minutes), median Euroscore (logistic) 2.11% (range 0.88-12.40%), median number of anastomoses onto the heart 4 (range 2-6). Cefalotin was administered i.v. by introduction of anaesthesia, when on extracorporeal circulation and after skin closure, 2g, 1g and 2g, respectively. Leukocyte count, CRP and neutrophil CD64 surface density expressed as percent positive cells were monitored prior to surgery and postoperatively on day 1, 2, 3 and 6 or 7.

### **Results**

Postoperatively the neutrophil CD64 expression was only moderately increased. Maximum CD64 expression was reached on day 3, median 4.79% (range 0.00-71.3%). Prior to surgery median CD64 expression was 0.00% (range 0.00-18.00%). Median CRP on day 3 was 194 mg/L (range 50-519 Mg/L). 3 patients had non invasive infections like cystitis. These infections did not induce a significant elevation of CD64 expression.

### **Conclusion**

On-pump CABG does not increase CD64 expression to the level seen during bacterial infection.