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Interleukin-6 and other inflammatory markers in diagnosis of peri-prosthetic joint infection

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Purpose: To evaluate diagnostic value of interleukin-6 (IL-6) and other inflammatory markers; C-reactive protein (CRP), erythrocyte sedimentation rate (ESR) and white blood cell count (WCC) in diagnosis of PJI.

Methods: Study group included 40 patients (21 males, 19 females) admitted for surgical intervention after knee or hip arthroplasties. Patients were subjected to careful history taking, thorough clinical examination and preoperative laboratory investigations including serum IL-6, CRP, WCC and ESR. Peri-implant tissue specimens were subjected to microbiological culture and histo-pathological examination.

Results: Mean age of studied patients was 58.4 years (range, 38-72 years). Intra-operative cultures and histo-pathological examination revealed that 11 patients had been infected (PJI) and 29 patients were aseptic failure of prosthesis. Four presumed markers of infection were tested preoperatively: ESR; CRP; WCC; and IL-6. ESR ($p=0.0001$), CRP ($p=0.004$), WCC ($p=0.0001$) and IL-6 ($p=0.0001$) were significantly higher in patients with septic revision than those with aseptic failure of the prosthesis. Serum IL-6 (>10.4 pg/ml) reportedly had a sensitivity (100%), a specificity (90.9%), a PPV (79%), a NPV (100%) and accuracy (92.5%).

Conclusions: The present study demonstrated that IL-6 has been found to be the most accurate laboratory marker for diagnosing PJI when compared to ESR, CRP, and WCC. IL-6 above 10.4 pg/ml and CRP level above 18 mg/L will identify all patients with PJI and the combination of CRP+IL-6 is an excellent screening test to identify all such patients (sensitivity 100%, NPV 100%).

Biography

Adham Elgeidi has completed his MD from Mansoura University and Postdoctoral studies from both Mansoura University School of Medicine, Egypt and Peninsula University School of Medicine, UK. He is currently a Consultant and Assistant Professor of Orthopaedics and Trauma with special interest in sports medicine and arthroplasty. He is the Director of Orthopaedics and Trauma undergraduate teaching and training program Mansoura University. He has published more than 20 papers in reputed journals and has been serving as an Editorial Board Member of repute. He has supervised more than 15 MSc & MD theses. He has presented more than 30 papers in different conferences. Previously, he worked for Plymouth, UK (May 2003 to August 2006), Tuebingen, Germany (September 2005 to October 2005) and Bordeaux, France (March 2007).

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