

Pattern Of Inflammatory Markers Post Total Knee Replacement Surgery

¹Mohd Ali O, ¹Mohd Miswan MF, ¹Abdul Razak MA, ¹Wazir F, ¹Muhamad Effendi F, ¹Sikkandar MF, ¹Sulaiman SH, ²Ahmad Saman MS

¹Department of Orthopaedics, Pusat Perubatan Pakar UiTM, Jalan Hospital, 47000 Sungai Buloh, Selangor

²Population Health and Preventive Medicine, Pusat Perubatan Pakar UiTM, Jalan Hospital, 47000 Sungai Buloh, Selangor

INTRODUCTION:

Septic arthritis following invasive knee surgeries is a rare complication but is however associated with severe morbidity.¹ Erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) are acute-phase proteins, which measure the acute-phase response. We are attempting to understand the normal trend of these inflammatory markers for total knee replacements done at our centre.

MATERIALS & METHODS:

A prospective cohort study involving 54 patients who underwent total knee replacement (TKR) was performed from January 2016 until December 2017. Patient's basal temperature and pre-operative WBC, ESR and CRP were taken on admission and upon discharge. They were then seen at regular intervals in follow-up clinics whereby repeat blood sampling of inflammatory markers was performed.

RESULTS:

All patients recruited in this study were clinically well and had normal values of inflammatory markers prior to surgery. Throughout the entire duration of the study period, no patients were afflicted with postoperative infection. There was a rise in inflammatory markers immediately post surgery. This is then followed by continuous decrease back to baseline values over a 90-day period. This effect is most demonstrable in CRP readings as shown in figure 1.

DISCUSSIONS:

Measuring the concentration of acute phase proteins at baseline and post surgery allows us to assess the extent of inflammation, which reflects momentary disease activity.² These measurements can then be correlated clinically to assess for symptoms and signs of infection.³ ESR and CRP are the inflammatory markers of

choice as they are cost-effective, achieve high concentrations relative to basal levels and correspond rapidly to inflammatory joint activity.

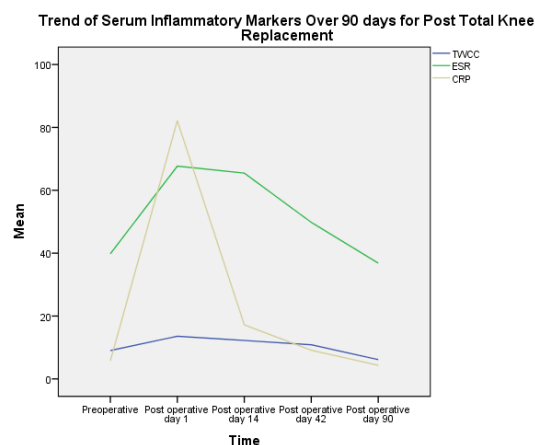


Figure 1: Trend of serum inflammatory markers over 90 days post TKR

CONCLUSION:

There is an abundance of literature supporting the usage of inflammatory markers in diagnosing and monitoring of infection in post-operative TKR patients. Knowing the normal trend of their course is useful as it can alert clinicians in cases of suspected infection post surgery.

REFERENCES:

1. Binnet MS, Basarir K. Risk and outcome of infection after different arthroscopic anterior cruciate ligament reconstruction techniques. *Arthroscopy* 2007;23:862–8.
2. Van Leeuwen. Acute phase proteins in the monitoring of inflammatory disorders. *Baillieres Clin Rheumatol* 1994;8(3):531–552.
3. Burks R, Friederichs M, Fink B, Luker M, West H, Greis P. Treatment of postoperative anterior cruciate ligament infections with graft removal and early reimplantation. *Am J Sports Med* 2003;31:414-418.