

Measurement of C- Reactive Protein (CRP) Using Magnetic Nanobeads Add ELISA**Baharifar, H. (MSe)**

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Abstract

Background and Objective: Magnetic nanobeads have a large surface- area-to-volume ratio, which is used for immobilized antibody. Using nanoparticles could increase the amount of antibodies in surface in comparison to ELISA. We investigated the ability of magnetic nanobeads to evaluate CRP by colorimetric method and compared the results with ELISA.

Material and Methods: This study is an applicable research conducted in Tehran University of Medical Sciences, 2012. The Magnetic nanobeads conjugated by CRP antibodies were used to measure the protein in the concentration of 1-10 ng/ml (ELISA kit levels) and 0.1 – 0.01 ng/ml. After antigen measurement, the results were compared with Mann Whitney test.

Results: The results in concentration of 1-10 ng/ml are not significantly different ($p = 0.78$). But In concentrations of 0.1-0.01 ng/ml, the difference is significant ($p= 0.02$).

Conclusion: The ability of Magnetic nanobeads in measurement of low concentration of antigen is 100 times better than ELISA. Thus Magnetic nanobead method is useful for early measurement and can easily be used in clinical laboratory.

Keywords: CRP; Magnetic Nanobead; ELISA