

## POTENTIAL ASSOCIATION OF *PROTEUS MIRABILIS* AND *STRONGYLOIDES STERCORALIS* AMONG RHEUMATOID ARTHRITIS PATIENTS

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**ABSTRACT :** Case-control study has done during February to May 2016 at Baghdad Hospitals. There were fifty blood and urine samples collected from rheumatoid arthritis (RA) patient's diagnosed and healthy control.

Anti-cycliccitrullinated peptide (anti-CCP), CRP, ESR and Rheumatoid factor (RF) tests had performed for both groups as a confirmed of diagnostic tests. Analysis of urine from RA patients and health controls to isolation and diagnosis of *Proteus mirabilis* bacterium and specific *Strongyloides stercoralis* antibodies (IgG) had detected by enzyme-linked immunosorbent assay (ELISA).

According to the results of study, RA patients own higher rising level of CRP than the ones in control group (32.29 and 4.42) respectively, also RA patients had 65.75 high levels of RF in comparison with healthy control group.

Isolation and diagnosis of *Proteus mirabilis* bacterium from culture results of urine from 50 patients with RA and health controls showed 16 isolates (32%) and 2(4%), respectively. From those (16) isolates only (7) isolates had diagnosed as *P. mirabilis* through biochemical tests and API 20E confirmation. It has found 29 (58%) of the RA patients positive to the *S. stercoralis*.

The current study has recorded significant differences between *P. mirabilis* and *S. stercoralis* ( $P < 0.01$ ) among RA patients when compared between RA patients that were suffering from *P. mirabilis* and control.

**Key words :** Rheumatoid arthritis, *Proteus mirabilis*, *Strongyloides stercoralis*.

### INTRODUCTION

Rheumatoid arthritis (RA) is an autoimmune disease with no certain etiology that could likely triggered by environmental factors in genetically susceptible individuals RA that is associated with genetic predisposition (Ebringer and Rashid, 2006). It is thought that one of these factors might be microbial (Silman and Pearson, 2002). RA spread in the whole between (0.5-1.5%) with geographical differences (Jonsson, 2008). RA incidence for men and women has raised with age (Turesson and Matteson, 2014).

Previous study that has accomplished by different groups to find the multi-organisms role in the pathogenesis of rheumatoid arthritis. It has found that there was a relation between RA and *Proteus mirabilis* microorganisms (Wilson *et al*, 2003).

In the past, a similar result has reported by an English group, where *Proteus* microbes were highly isolated (63%) in females and (50%) male's patients with RA than healthy of 32% women and 11% men (Ebringer *et al*, 1993). Previous studies have been suggested molecular mimicry

or similarity between *Proteus* and self-antigens patients infected with *Proteus* microbes will produce not only antibodies against this microbe but against the self-tissue molecules (Wilson *et al*, 2003).

The possible association between RA and sensitization with parasitic antigens like *Strongyloides stercoralis* has previously reported (Sellami *et al*, 2003; Marcos *et al*, 2006).

*Strongyloides stercoralis* is a soil-dwelling nematode, which alternates between the free-living and the parasitic stage and affects an estimated 100-200 million individuals worldwide (Tefé-Silva *et al*, 2012).

The study has designed to investigate the potential association between isolation rates of *Proteus mirabilis* and *Strongyloides stercoralis* at RA patients. In addition, the study investigate RA severity within these microbial infections.

### MATERIALS AND METHODS

It has collected eight ml of venous blood samples from one hundred RA patients and controlled under full aseptic condition. Midstream urine has collected and controlled