



## Raised Faecal Calprotectin in Polycystic Ovary Syndrome: is it a Marker of Inflammatory Bowel Disease?

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### Introduction

Polycystic ovary syndrome remains the commonest endocrine dysfunction amongst women of childbearing age, however it is diagnosis and treatment is one of the predicament issues to Gynaecologist and endocrinologist [1]. It is characterised by cystic tissue, oligo/amenorrhoea, hyperandrogenism, anovulatory infertility and metabolic syndrome [1,2]. It has prevalence between 5 to 21% based on ethnic groups, study population's characteristics and varies approach to identify hallmarks of PCOS [2]. The pathogenesis of PCOS is not fully understood [2]; however, it has been linked to systemic inflammation, adding to (epi) genetic and environmental factors [2]. Conditions for instance chronic inflammation and oxidative stress that leads to a range of disease processes and endothelial disorder has been described to contribute in the pathogenesis of PCOS [2].

Based on Dysbiosis of Gut microbiota theory, infective disorders of the intestine leads to an increase in intestinal mucosal permeability resulting in transfer of lipopolysaccharides from colonic bacteria to the circulation which cause an activation of the immune system and rise in insulin serum levels by interfering with the function of insulin receptor subsequently leads to increase in androgen production which prevents normal follicle development [2]. It has been reported in the literature that Hyperandrogenism might play a crucial role in shaping gut microbiota and subsequently the development of PCOS [2].

Calprotectin is also known as MRP8/14, S100A8/S100A9 which is an antimicrobial, calcium and zinc binding hetero complex protein strongly linked with inflammations that originate

from neutrophils and macrophages [1,2]. It has different biological functions including suppression of cell proliferation, induction of apoptosis, immune regulation, tumorigenesis, involved in inflammatory reactions and it is a positive acute phase protein response [1,2]. It was found in low concentration in monocytes, tissue macrophages and eosinophils [1]. Nevertheless the role of calprotectin in the pathogenesis of PCOS is not entirely understood [1], however, significantly raised serum concentration of calprotectin found in patients with PCOS, which could be used as a helpful marker in the diagnosis of PCOS with a good sensitivity and specificity [1,3]. Faecal calprotectin level is none invasive surrogate to the flow of neutrophils into the gut and is linked to diseases for example inflammatory bowel disease and irritable bowel syndrome.

Several Studies concluded that, PCOS patients have reduced ranges of intestinal flora and higher faecal calprotectin levels [2], a small number of studies demonstrated high incidence of irritable bowel syndrome in patients with PCOS [4], however is there a relationship between intestinal inflammation and PCOS and the raise in faecal calprotectin is it a marker of inflammatory bowel disease in PCOS patients? Or is it a proxy of inflammatory process in PCOS per se? It must be noted that oral contraceptive pills used in the treatment of PCOS might reduce faecal calprotectin levels [2]. Due to limited numbers of literature on the subject, I therefore strongly believe that a research is required before we could draw any conclusions.

### Conflict of interest

The author has no conflict of interest to be declared.

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