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## Rheumatoid arthritis activity and severity in relation to commonly used contraceptive methods in a cohort of Egyptian female patients

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**Statement of the Problem:** Rheumatoid arthritis (RA) is a chronic inflammatory autoimmune disease; characterized by an immune response against post translationally modified proteins in particular citrullinated proteins. Recent studies have found that ACPA response matures shortly before clinical disease manifests itself. Data suggested the association of an increased risk of ACPA positivity with IUD use prompting the need to investigate this association suggesting a possible etiopathogenic role of IUD use in Egyptian female RA patients. We hypothesized that the IUD might be a potent environmental trigger through its potential to induce chronic subtle renewed tissue injury and chronic inflammation triggering citrullination at the site of the endometrium thus aggravating and perpetuating RA disease in female RA patients.

**Objective:** To study the impact/effect of commonly used contraceptive methods on rheumatoid arthritis (RA) disease activity, severity, and damage in a cohort of Egyptian female RA patients.

**Methods:** Two hundred female RA patients were enrolled and divided into two groups; non-contraception users (50 patients) and contraception users (150 patients). The latter group was further subdivided according to the method of contraceptive method used into: 89 intrauterine device (IUD)-users; 45 combined oral contraceptives (COC)-users; 16 injectable users. All patients underwent thorough history taking with special emphasis on contraception history, clinical examination, and assessment by routine laboratory tests, rheumatoid factor (RF) and antibodies to citrullinated protein antigens (ACPA). Rheumatoid arthritis disease activity was assessed using Disease Activity Score 28 using CRP (DAS28/CRP), while RA disease severity was assessed using Rheumatoid Arthritis Severity Scale (RASS). Bilateral hand x-rays were done and interpreted by the Short Erosion Scale (SES).

**Results:** The percentage of ACPA seropositivity among IUD-users was 75.3%; the highest among all studied subgroups. IUD-users showed significantly higher ACPA titers ( $p=0.020$ ), as well as longer disease duration ( $p=0.021$ ) compared to other methods-users. The RASS was significantly higher in injectable users in comparison to other methods-users followed by the IUD-users ( $p=0.008$ ). COC-users had the least RASS. However, there were no significant differences regarding DAS28/CRP or SES between different contraceptive methods-users. There was positive correlation between ACPA titers and RASS.

**Conclusion:** The increased ACPA positivity as well as higher ACPA titers in women who are currently IUD-users suggests a possible etiopathogenic role for IUD in onset and perpetuation of RA disease. Mechanisms by which IUD could increase RA-related autoimmunity risk were discussed. Whether cessation of IUD use in RA patients might improve their current state of disease need further study.

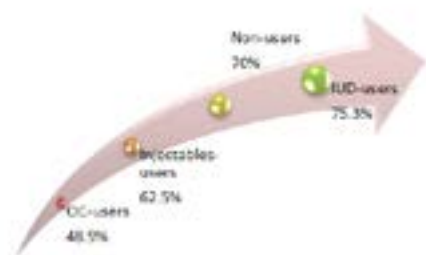


Figure 1: Rheumatoid arthritis



Figure 2: Female organs

#### Recent Publications

1. Hala Lotfy Fayed and Amel Hamdy Saleh (2017) Frequency of vitamin D inadequacy among saudi males visiting a rheumatology outpatient clinic of a tertiary hospital in Al-Qassim region: effect of vitamin D supplementation. *Egyptian Rheumatologist* 39:249–254.
2. Samia Fadda, Nermeen Khairy, Hala L Fayed, Heba Mousa and Radwa Taha (2017) Interstitial lung disease in Egyptian patients with rheumatoid arthritis: frequency, pattern and its correlation with various clinical manifestations and anti-citrullinated peptide antibodies level. *Egyptian Rheumatologist* DOI: 10.1016/j.ejr.2017.10.006.
3. Hala Lotfy Fayed, Hatem H Eleishi, Heba A Kamal and Nouran I Mahmoud (2017) Rheumatoid arthritis activity and severity in relation to commonly used contraceptive methods in a cohort of Egyptian female patients. *International Journal of Clinical Rheumatology* 12(6):168-182.
4. Manal Wilson, Amany A Abou-Elalla, Mervat Talaat Zakaria, Huda Marzouk, Hala Lotfy Fayed and Mariam Onsy F Hanna (2016) Serum amyloid a type 1 gene polymorphism in egyptian children with familial mediterranean fever. *Pathobiology* 83(6):295–300.
5. Aml S Nasr, Hanan Darweesh, Engy E L Khateeb, Hala L Fayed and Al-Hussein El-Dakrony (2017) Role of glutathione S-transferases polymorphisms and monocyte CD64 expression in Egyptian patients with systemic lupus erythematosus. *Egyptian Rheumatologist* 39:139–143.

#### Biography

Hala Lotfy Fayed is a Lecturer of Rheumatology and Rehabilitation, Kasr Al Ainy School of Medicine, Cairo University and has her expertise in research related issues to autoimmune rheumatic diseases, as well as metabolic bone diseases. She works at Kasr Al Ainy School of Medicine which is a research and teaching hospital, affiliated with the Faculty of Medicine. She has passion in improving health and wellbeing. Her open and contextual work aims for improving healthcare. She has built this model after years of experience in research, evaluation, teaching and administration both in hospital and education institutions.

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