Role of anti-mcv in arthritis

Introduction

Rheumatoid arthritis (RA) is characterized by joint inflammation resulting in severe deformity, thus, early management is crucial. At a time, rheumatoid factor (RF) was considered the gold standard for diagnosis, however, more specific and sensitive auto-antibodies have been reported. Antibodies against citrullinated peptides, the peptides modified by the conversion of arginine to citrulline, have then been regarded as specific serological markers for RA (Klareskog et al., 2008; Engelmann et al., 2008).

Citrullination is a process of protein unfolding, altering protein structure resulting in aberrant recognition in the immune system. They are thought to be triggered by genes that confer susceptibility to RA and by environmental agents (Klareskog et al., 2008).

Anti-cyclic citrullinated peptide (anti-CCP) has been proposed as a good alternative to RF for diagnosis of RA owing to its higher specificity and sensitivity (Sauerland et al., 2005). However, debate exists regarding its specificity in hepatitis C virus (HCV) infection (Riccio et al., 2008; Liu et al., 2008).

HCV infection is usually asymptomatic and may be detected incidentally; it induces immunological extrahepatic manifestations including arthralgia and arthritis which can mirror RA, and discrimination would be difficult without observing the erosions (Palazzi et al., 2008).

In addition to anti-CCP, anti-mutated citrullinated vimentin (anti-MCV) has gained importance. Vimentin is a protein filament that is expressed by in the

synovium. Modification of this protein occurs in macrophages experiencing apoptosis, thus, anti-vimentin antibodies may emerge if the apoptotic material is not adequately removed (Khalifa et al., 2013).

Performance of anti-MCV antibodies has been studied mainly in connective tissue diseases (Mutlu et al., 2009; Wagner et al., 2009; Luime et al., 2010), however, no enough data exists regarding its role in discriminating RA from HCV associated arthritis.

Research Question

What is the role of anti-MCV in differentiating arthritis of rheumatoid origin from that associated with chronic HCV infection?

Rationale

HCV related arthritis is one of the extrahepatic immunological manifestations of HCV infection and may resemble rheumatoid arthritis (RA). Thus, differentiating patients with HCV associated arthropathy from patients with RA represents diagnostic and therapeutic challenges.

Hypothesis

The potential role of anti-MCV in discriminating rheumatoid arthritis from HCV associated arthropathy will be assessed in this study.

Aim of the Work

The aim of this study is to investigate the diagnostic value of anti-MCV in differentiating rheumatoid arthritis (RA) from HCV associated arthropathy.

Objectives

1. To measure the level of anti-MCV in rheumatoid patients and chronic HCV patients.
2. To assess the diagnostic performance of anti-MCV in differentiating arthritis of rheumatoid disease and chronic HCV infection.

Subjects, Material, and Methods

1. Ethics statement:

All procedures will be conducted in accordance with the ethical principles expressed in the Declaration of Helsinki. Written informed consents will be obtained from all patients will be enrolled in the study.

2. Administrative Design:

Approval will be obtained from Zagazig University Institutional Review Board (IRB).

3. Subjects:
    1. Inclusion criteria:

The study will be conducted on 2 groups of patients recruited from Zagazig University Hospitals:

- Group I will include 30 patients with rheumatoid arthritis (RA) characterized according to the American College of Rheumatology (ACR) and European League Against Rheumatism (EULAR) new classification criteria for RA (Aletaha et al., 2010), and negative for anti-HCV antibodies.
- Group II will include 30 patients with chronic HCV-associated arthropathy positive for HCV antibody and RNA.

2. Exclusion Criteria:

Patients with any of the following criteria will be excluded:

1. Positive for HBs-Ag
2. Other connective tissue diseases
3. Chronic infection/inflammation
4. Malignancy
5. Organ transplant

4. Material and Methods:

The laboratory section of this part of study will be carried out in the Medical Microbiology and Immunology Department, Faculty of Medicine, Zagazig University.

1. Clinical division:

Demographic data and disease history will be taken from all patients (age, sex, disease duration). Disease activity score (DAS 28) will be calculated for RA patients as per Preevo et al. (1995).

2. Laboratory division:

Five ml blood samples will be aseptically collected from both groups. Centrifugation will be done followed by storage at -20°C until analysis.

All samples will be investigated for anti-MCV and anti-CCP using indirect enzyme linked immunosorbent technique (ELISA). All gathered data will be then statistically analyzed using the appropriate statistical tests.