Dedication

I would like to dedicate this research to:

My loving and supportive parents Mr. Osman Khalifa and

Mrs. Najah El gaddal.

And to my family who have always been there for me and who've helped me through my studies.

And to Allah for paving the road for me and gracing me with everything that helped me become the person I am today and to achieve my goals in life.

And also to my teachers and supervisor, who were always supportive and helpful.

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ABSTRACT

This cross-sectional case-control study aimed to investigate the effects of fasting in influencing the hematological and inflammatory response in rheumatoid arthritis patients. In this study, samples were collected from RA patients who were RF positive and anti-CCP positive during the month of Ramadan, 31 samples from the fasting group, and 31 samples from the non-fasting patients. Data was collected from patients using questionnaires and existing laboratory data. The tlcs, differential leukocyte count, ESR and hs-CRP were tested for each patient using Sysmex kx-21N device and automated ELISA, and analyzed using SPSS program for the fasting and the non-fasting groups. For the fasting RA group ESR values were significantly higher (p-value= 0.014) compared to the non-fasting RA group. Fasting RA group also obtained higher hs-CRP values (p-value= 0.00) compared to the non-fasting RA group. The absolute monocyte count revealed significantly higher values (p-value=0.013) in the fasting RA group than the non-fasting group. The tlcs, absolute neutrophil count and absolute lymphocyte count (p-value=0.942, p-value=0.451, p-value=0.877) respectively, revealed insignificant results between the fasting and non-fasting RA patients. This study concludes that fasting for 12-14 hours per day, is associated with the reduction of the inflammation progression in rheumatoid arthritis patients.

المستخلص

هدفت هذه الدراسة (المقطعية - الحالة و المجموعة الظابطة) لاستقصاء تأثير الصيام على التغير في الاستجابات الدموية و الالتهابية لدى مرضى التهاب المفاصل الروماتويدي. في هذه الدراسة ، تم جمع عينات من مرضى التهاب المفاصل الروماتويدي الذين كانوا RF و Anti-CCP إيجابيين. تم أخذ 31 عينة من مرضى الروماتويد الصيام، خلال شهر رمضان ، و 31 عينة من مرضى الروماتويد الغير صائمين. وقد تم جمع البيانات من المرضى الصيام و الغير صيام باستخدام الاستبيانات والبيانات المختبرية الموجودة. تم تحليل التعداد الكلي لكريات الدم البيضاء، وعدد الكريات البيض التفاضلية ، سُرْعَةُ تَثَفُّلِ الكُرَيَّاتِ الحُمْر و البْروتين المُتَفاعِلُ C للمجموعة الصيام والمجموعة الغير صيام باستخدام جهاز ال Sysmex kx-21n و جهاز ELISA الاتوماتي وحلّلت بواسطة برنامج SPSS. حصلت مجموعة مرضى الروماتويد الصيام على سُرْعَةُ تَثَفُّلِ الكُرَيَّاتِ الحُمْر أعلى بكثير قيمة ($p = 0.014$) مقارنة بمجموعة مرضى الروماتويد الغير صيام. أظهرت مجموعة مرضى الروماتويد الصيام قيم البْروتين المُتَفاعِلُ C أعلى قيمة ($p = 0.00$) مقارنةً بمجموعة مرضى الروماتويد غير الصيام. كانت قيم عدد خلايا أحادية المطلقة في مجموعة الصيام أعلى بكثير (قيمة $p = 0.013$) من مجموعة مرضى الروماتويد الغير صيام. كشف التعداد الكلي لكريات الدم البيضاء ، وعدد العدلات المطلق وعدد الخلايا اللمفاوية المطلقة (قيمة$p = 0.942$ ، قيمة$p = 0.451$ ، قيمة $p = 0.877$) على التوالي ، نتائج غير ذات دلالة إحصائية بين مرضى الروماتويد الصيام والغير صيام. تلخص هذه الدراسة إلى أن الصيام لمدة تتراوح ما بين 12 الى 14 ساعة يوميًا ، له تأثير على تقليل تقدم الالتهاب في التهاب المفاصل الروماتويدي.

ABBREVIATIONS

Abbreviation	
RA	Rheumatoid Arthritis
WHO	World Health Organization
IF	Intermittent Fasting
TLC	Total Leukocytes Count
Abs Neut	Absolute Neutrophil Count
Abs Mono	Absolute Monocyte Count
Abs Lymph	Absolute Lymphocytes Count
ESR	Erythrocyte Sedimentation Rate
Hs-CRP	High-sensitivity C-Reactive Protein
HLA	Human Leukocyte Antigen
RF	Rheumatoid Factor
Anti-CCP	Anti-Cyclic Citrullinated Peptides
DMARDs	Disease-Modifying Anti-Rheumatic Drugs
NsAIDS	Non-steroidal Anti-Inflammatory Drugs
CBC	Complete Blood Count
MXD	Mixed Absolute Count
WBC	White Blood Cells

RBC	Red Blood Cells
PLT	Platelets
IgM	Immunoglobulin M
IgG	Immunoglobulin G
ELISA	Enzyme linked Immuno-Sorbent Assay
PH	Potential Hydrogen
DAS-28	Disease Activity Score-28

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