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Prevalence of Thyroid Diseases in Rheumatoid Arthritis Patients

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Abstract

Background – Prevalence of thyroid diseases in RA is common Phenomenon with multiple clinical manifestations. Hence various parameters of auto immune thyroid and RA were ruled out.

Method- 80 adult patients aged between 48 to 60 years were studied. Blood examination was done to confirm RA factor + ve, and ESR, CRP blood glucose, Auto antibodies such as RF, anti CCP, TPOAD, and TgAb, antibodies were analyzed with enzyme linked immune sorbent assay (QUANTA –Lite INOVA)

Results- Type - 2 DM 4.1%, HTN 25.6%, thrombosis 4.8, CVD-20.2%, Erosion of Joints- 17.2%. Dyslipidemia, 22.3% Abnormal cholesterol, 51.2%, anti CCP-77% ANAS +ve 6%, Anti-RO-13, Anti-LA-5%, TPOAb±21.6% TPgAb 19%. RF level in RA with AITD was 66.3 and without 78.2 Anti LA in RA with AITD was 13.32 and without AITD was 4.52 Anti RO in RA with AITD had 25.17 and without AITD was 11.80 TPoAb⁺ was in RA with AITD was 92.3, TgAb⁺ 49.2 respectively. Out of RA Patients 9(11.2%) AITD were diagnosed as RA with AITD.

Conclusion- The prevalence of thyroid diseases in RA is quite common phenomenon. These studies will help to differentiation clinical stratification of AITD and RA so that such patients can be treated efficiently to prevent morbidity and morbidity.

Keywords: - RA= Rheumatoid Arthritis, AITD= Auto Immune Thyroid diseases, HTN= Hypertension CVD= cardio vascular Disease, TpoAb⁺, TgAb⁺.

Introduction

Rheumatoid Arthritis (RA) is chronic and systemic auto immune diseases which can result in constant inflammatory polyarthritis and continuous joint destruction, leading to damaged mobility and increased disability ⁽¹⁾. The mechanism underlying the increased risk of co-morbidities among RA patients is unclear but many studies tend to attribute it to the inflammatory conditions of RA patients ⁽²⁾. Thyroid disease also an auto immune endocrine disorder however being a group of Auto –immune diseases (Ads) Clustered together clinical presentations can be divided into those that can cause hypothyroidism, or both ⁽³⁾. The pathogenesis exhibits an antibody profile that may be composed of antibodies directed against the thyroperoxide enzyme (TPOAb) antibodies directed against thyroglobulin protein (TgAb) antibodies against thyrotropin receptor (TSHrAb).

Generally T lymphocytes are the main cell type in filtering the gland in Hashimoto's thyroiditis while β - lymphocyte predominates and determines the presence of Graves diseases ⁽⁴⁾.

Since several decades on increases number of thyroid disorder in patients suffering from RA has been reported both auto immune and non-auto immune in nature. It is noteworthy that; the most common symptoms are polyarthralgia and un-classified arthritis which is main feature of RA. Hence attempt was made to study the prevalence of AITD with in RA to determine the differences between these two groups regarding prognostic feature of RA and to analyze the findings of prevalence of AITD in RA and to evaluate any deviations RA patients due to AITD presence

Material and Methods

80 patients of RA of both sexes aged between 48 to 60 years (65 female and 15 males) having the signs and symptoms of RA, regularly visiting to medicine department and majority were referred by orthopedic department of Government cancer society medical college Hospital and research centre Ahmadabad-380025, Gujarat.

Inclusive criteria- The patients have positive RA Factors, painful gait, due to erosion of joints, having history of thyroid diseases or thyroid hormone therapy was included in the study.

Exclusion criteria – The patients having osteo- arthritis, history of juvenile diabetes musculo-skeletal disorders, patients with immune compromised were excluded from the study.

Method- Every patient's history was recorded. Blood examination was ruled out. ESR, CRP. Blood glucose, Auto-antibodies such as RF, (Rheumatoid factor) anticyclic citrullinated peptide (anti CCP)TpoAb, and TgAb antibodies and analyzed with enzyme, linked immune sorbent Assay (QUANTA-Lite, INOVA) to confirm the acute immune thyroid disease in RA patients. X-ray was taken to study the degree of erosion of joints. The duration of study was September 2018 to November 2019.

Statistical analysis- The clinical manifestation of RA with AITD were study to derive mean value (\pm SD) and most of the findings were classified with percentage and RA with AITD and RA without AITD were compared to study the level of various parameters and out of 80 RA patients were diagnosed of AITD (9.2%). The statistical data was studied in the SPSS soft ware of 2007. The ratio of female and male was 3:1

Observation and Results

Table-1 –The clinical manifestations of RA with AITD patients –Duration of RA was 8 year ($SD\pm 1-4$) body mass Index 23(± 5.2) Type -2 DM- 4.1%, HTN-25.6%, Thrombosis -4.8%, CVD - 20.2% , Erosion of joints- 17.2, Age group 50.2 (± 5.8) patients on Aspirin-15%, patients on Methotrexate 62% patients on anti malaria drugs 48% patients on steroids 32% patients on herbal treatment 28%

Table-2- Characteristic of RA and AITD 23%, Dyslipidemia, 51.2% abnormal cholesterol, 78%, RA factor, 77%. Anti CCP t, 67.2% ANAS⁺ 13% anti RO, 5% anti LA 21.6% TpOAB⁺, 19.1% TpAb⁺

Table-3- Comparison of various parameters RA with AITD, RA without AITD, Type-II DM-RA with AITD was 14.6% and RA without AITD was 2.9 usage of methotrexate in RA with AITD was 94.1% without was 82.5. Thrombosis in RA with AITD was 11.5% without AITD was 3.89% Anti LA in RA with AITD was 13.32 without AITD was 4.52. Anti, Ro in RA with AITD was 25.1% RA without AITD was 11.8. Abnormal BMI in RA with AITD was 51.3, RA without AITD was 38.2%, Abnormal cholesterol 36.58 in RA with AITD, 52.7 in without AITD. RF⁺ Factor in RA with AITD was 66.3 and without AITD 78

TpoAb⁺ was 92 in RA with AITD and Zero in without AITD TgAb⁺ was 49.2 in RA with AITD and zero in RA without AITD.

Discussion

In the present study prevalence of thyroid disease in RA – The duration of RA in years was 8 (SD±5.2) Type- 2 DM was 4.1%, Hyper tension (HTN) was 25.6% CVD- 20.2% Erosion of joints (viewed radio logically) 17.2% Age group was 50.2 (±5.8) patients on Aspirin usage were 15% patients on usage of methotrexate were 62%, patients on Anti malarial drugs were 48%, patients on steroids were 32% patients on Herbal treatment were 28% (Table-1) In the characteristics futures of RA and AITD- 22.3% had dylipidemia, 51.2% Abnormal cholesterol 78% Rheumatoid factor positive 77% Anti CCp, Positive, 67.2% had ANAs +ve, 13% had Anti-Ro, 5% had anti LA, 31.6,21.6% had Tp0Ab +ve, 19.1% TpgAb+ve (Table-2) Comparison of various parameters RA with AITD, RA without AITD, Type-II DM-RA with ATTD was 14.6% and RA without AITD was 2.9 usage of methotrexate in RA with AITD was 94.1% without was 82.5. Thrombosis in RA with AITD was 11.5% without AITD was 3.89% Anti LA in RA with AITD was 13.32 without AITD was 4.52. Anti, Ro in RA with AITD was 25.1% RA without AITD was 11.8. Abnormal BMI in RA with AITD was 51.3, RA without AITD was 38.2%, Abnormal cholesterol 36.58 in RA with AITD, 52.7 in without AITD. RF⁺ Factor in RA with AITD was 66.3 and without AITD (Table-3). These findings were more or less in agreement with previous studies ⁽⁵⁾⁽⁶⁾⁽⁷⁾.

Although the RA and AITD clinical feature patho –physiological mechanism are similar but this correlation or prevalence yet to be confirmed because RA is linked with articular manifestation of joints cardio- vascular disease having worst prognosis but AITD is linked with numerous genes found to result in risky diseases including HLA gene complex, CD₄₀, CTLA₄, PTPN22 TSH receptor gene and thy rogolobution gene ⁽⁸⁾. Hence it can be Hypothesized that EAM (Extra articular manifestations) which include skin ulcerations, modules episcleritis, vasculitis, neuropathy, pleural effusion, pulmonary hypertension or embolism and CVD ⁽⁹⁾. Among this vasculitis, pulmonary HTN, CVD might have resulted into AITD because of irregular or intermitted, retarded or accelerated bloods flow.

In addition to this dyslipidemea, hyper cholestermia might have impaired the endocrine secretion which might have resulted into AITD, moreover major involvements of CVD in RA cannot be ignored ⁽¹⁰⁾. Hence variations in cardio-vascular circulation might have caused impairment hormonal secretion like TSH, T₃,T₄ and alteration in the iodine trap mechanism which might lead to AITD As RA is on genetic disorder, but symptoms are aggravated by environmental and nutritional factors which links with metabolic and endocrinological disorders.

Summary and Conclusion

Prevalence of thyroid disease in RA is quite common disorders aggravated CVD and DM. This study of justification TD in RA demands further immunological, genetic, nutritional, environmental, hormonal, Patho-Physiological studies, because exact correlation between these two clinical findings are still un-clear.

Limitation of study

Owing to the limited funds and Lack of advanced research Instruments we have limited findings.

Table-1

(No of patients 80)

The clinical manifestations of RA patients with Thyroid disease

Duration of RA (years)	8(SD±1-4)
Body mass index	23(SD±5.2)
Type-2 DM	4.1%
Hypertension	25.6%
Thrombosis	4.8%
CVD	20.2%
Erosion of joints	17.2%
Age group	50.2(±5.8)
Patients on Aspirin use	15%
Patients on methotrxate	62%
Patients on Anti malarial drugs	48%
Patients on steroids	32%
Patients on Herbal treatment	28%

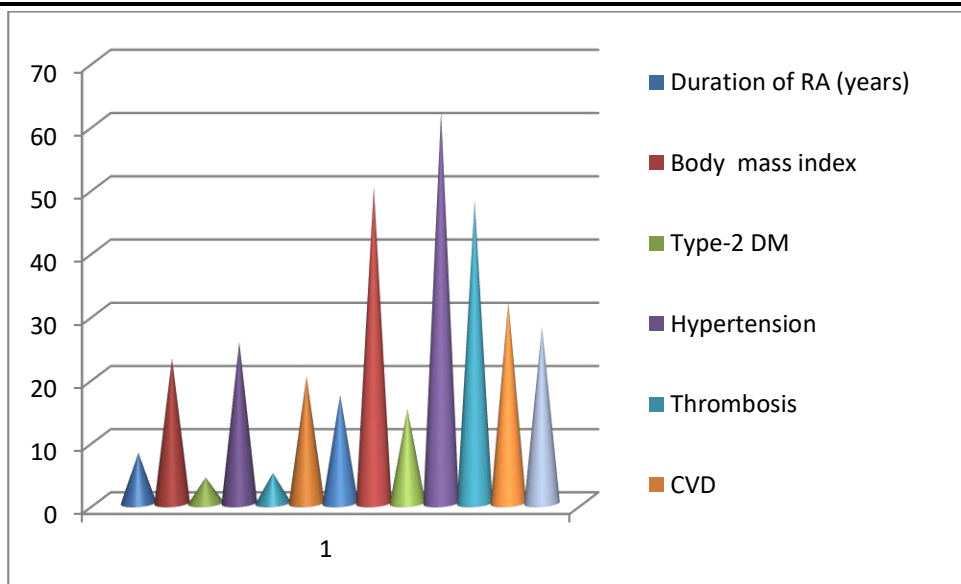
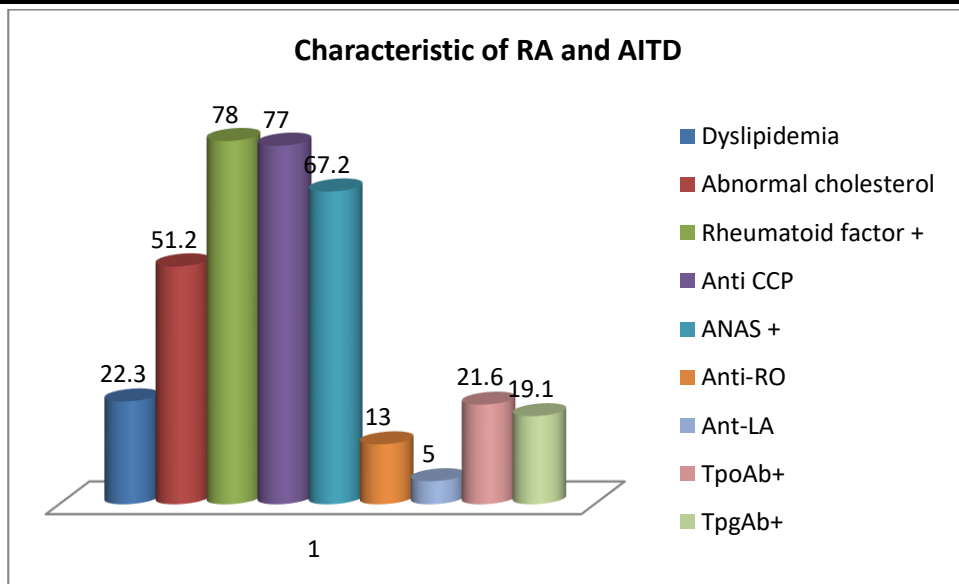


Table-2

(No of patients 80)

Characteristic of RA and AITD

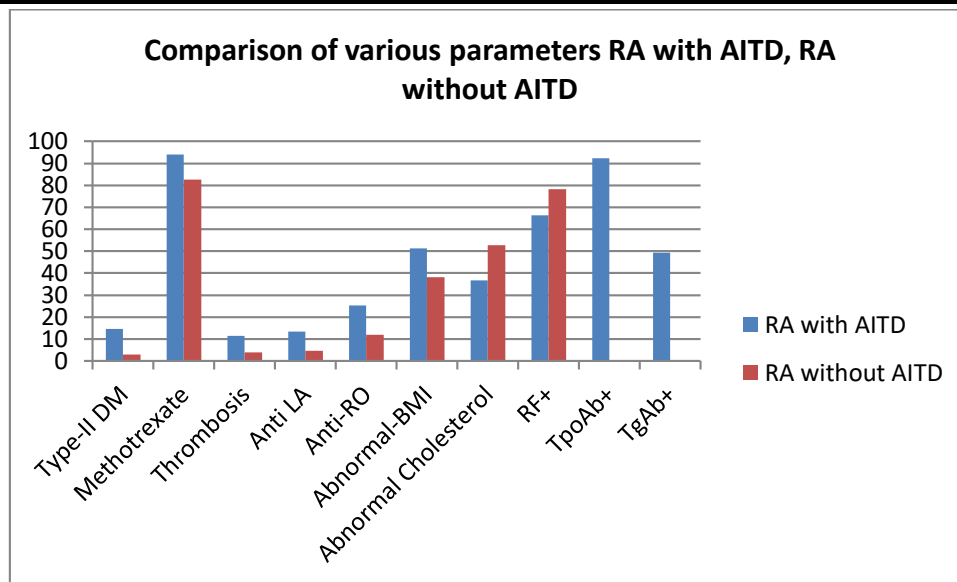
Dyslipidemia	22.3%
Abnormal cholesterol	51.2%
Rheumatoid factor +	78%
Anti CCP	77%
ANAS +	67.2%
Anti-RO	13%
Ant-LA	5%
TpoAb ⁺	21.6%
TpgAb ⁺	19.1%

**Table-3**

(No of patients 80)

Comparison of various parameters RA with AITD, RA without AITD

AITD particular	RA with AITD	RA without AITD
Type-II DM	14.61	2.9
Methotrexate	94.11	82.5
Thrombosis	11.52	3.89
Anti LA	13.32	4.52
Anti-RO	25.17	11.80
Abnormal-BMI	51.3	38.2
Abnormal Cholesterol	36.58	52.71
RF ⁺	66.3	78.2
TpoAb ⁺	92.3	-
TgAb ⁺	49.2	-



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