PREVALENCE AND PREDICTORS OF RENAL DYSFUNCTION IN RA

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Introduction

- Rheumatoid arthritis is an autoimmune disease involving multiple synovial joints and extra-articular organs which are affected by inflammatory activity of disease .
- Worsening renal function in RA can deteriorate the course of primary illness and can even lead to early mortality.
- RA patients have increased propensity to other co-morbid conditions like diabetes, hypertension , obesity which impose negative impact on kidney function.
- Renal Dysfunction is an underdiagnosed entity in RA.
- Renal involvement can be disastrous in patients with RA and should be looked cautiously.

Aims & Objectives

- To study about prevalence of renal dysfunction in RA
- To find the predictors of renal dysfunction in patients with RA

Materials and methods

- A cross sectional study conducted at Rheumatology clinic, RML Hospital
- Number of subjects – 109 (86F, 23M)
- Adult patients attending the Rheumatology clinic under department of Medicine, fulfilling the definite criteria for RA (EULAR/, ACR 2020) were recruited as subjects
- Exclusion criteria

  Recent UTI,

  Nephrolithiasis

  DM, HT,

  HIV,HCV, Hep B

  Chronic alcoholism

  Contrast exposure within last 6 months

- All routine investigations were performed
- Urine microalbuminuria
- Urine ACR
- S. Erythropoietin level
- USG KUB to look for renal cortical echogenicity
- Renal dysfunction was detected by measuring eGFR as per the “Kidney Disease Improving Global Outcome (KDIGO) guidelines for chronic kidney disease (CKD)".
- Estimation of eGFR was done by modification of diet in renal disease equation (MDRD) eGFR =186 x (serum creatinine) $^{0.154}$ x (age) $^{0.203}$ ml/min per 1.73m^2 BSA(multiply by 0.742 for women)
- Renal dysfunction defined with eGFR(MDRD) less than 60ml/min/ 1.73m^2 BSA
- S. cystatin C was measured as it is one of the early markers of Renal dysfunction.
- Better marker than S.creatinine as it is unaffected by diet and muscle mass.

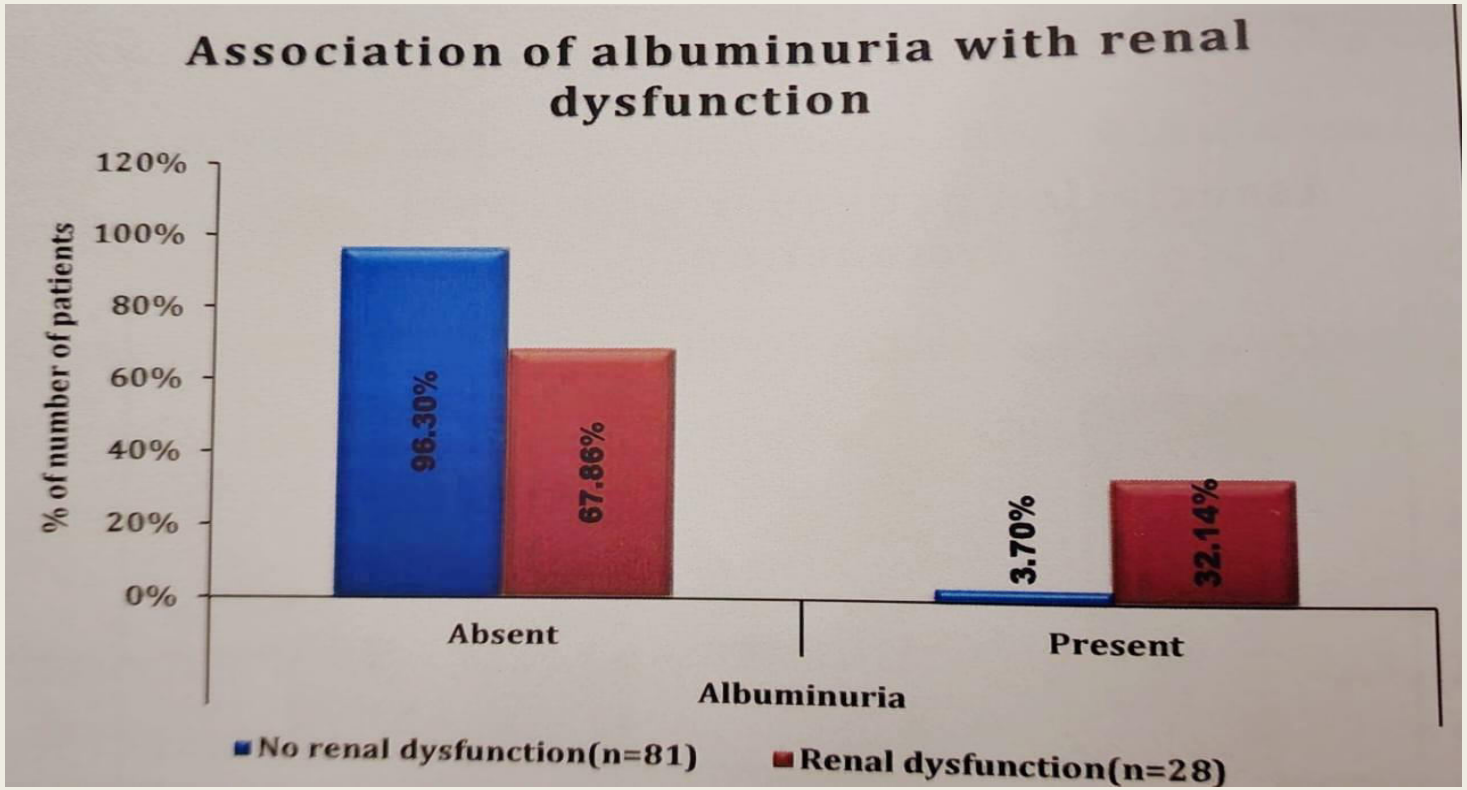
Results and Observations

- Total -109 cases
- Group A- 81 (74.3%) had no renal dysfunction
- Group B- 28 (25.6%) had renal dysfunction
- Mean value of GFR found to be 82.5ml/min/ 1.73m^2 BSA
- None of the patient has CKD stage 4 or 5
- Prevalence of CKD in RA was found to be 25.69 %

Prevalence of CKD amongst RA patients

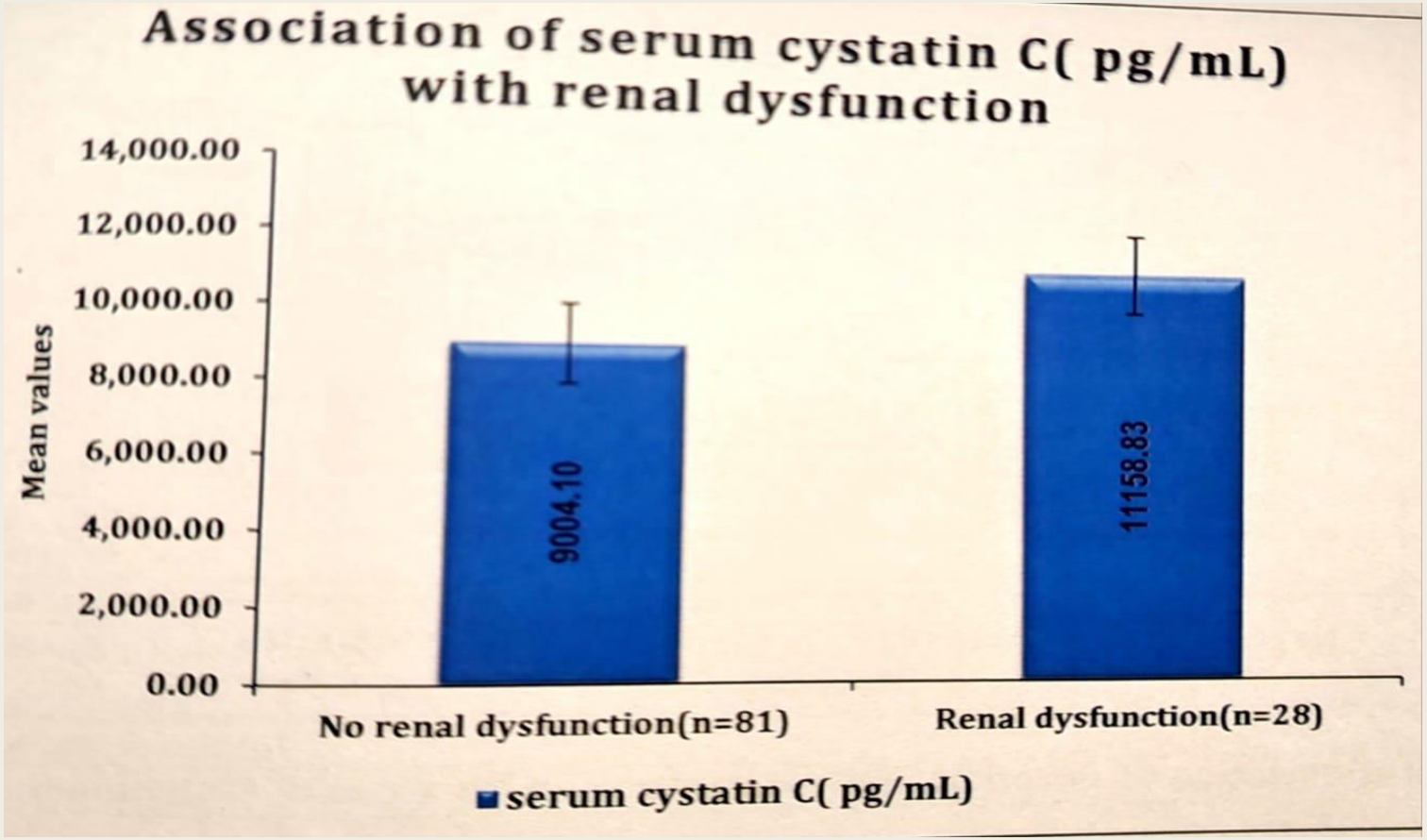
S.No	CKD Stage	Number	Frequency %
1	1	44	40.4
2	2	37	34.0
3	3A	18	16.5
4	3B	10	9.1
5	4	0	0
6	5	0	0

Albuminuria and Renal Dysfunction



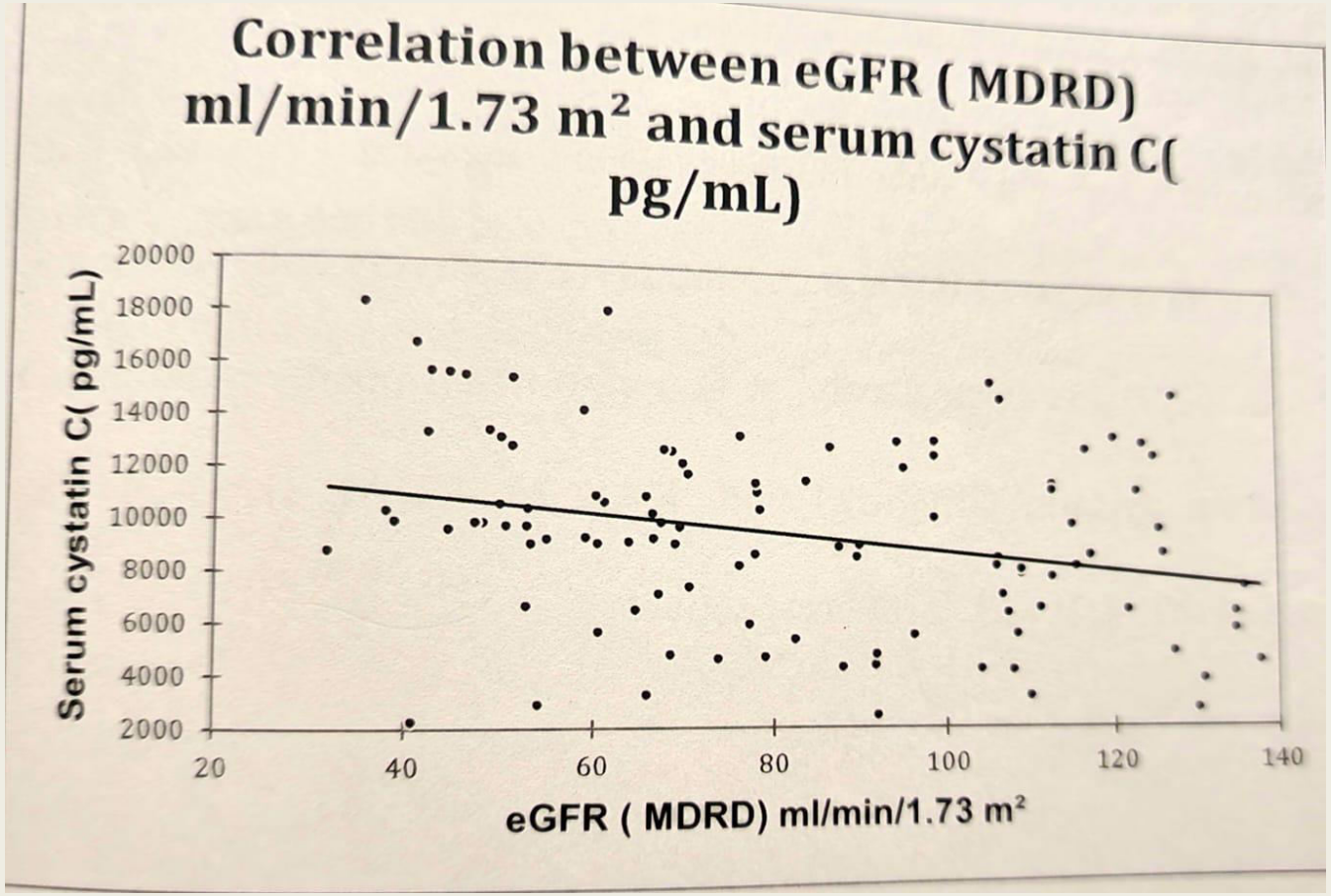
Patients with albuminuria had significantly higher risk of renal dysfunction

Serum Cystatin C and renal dysfunction



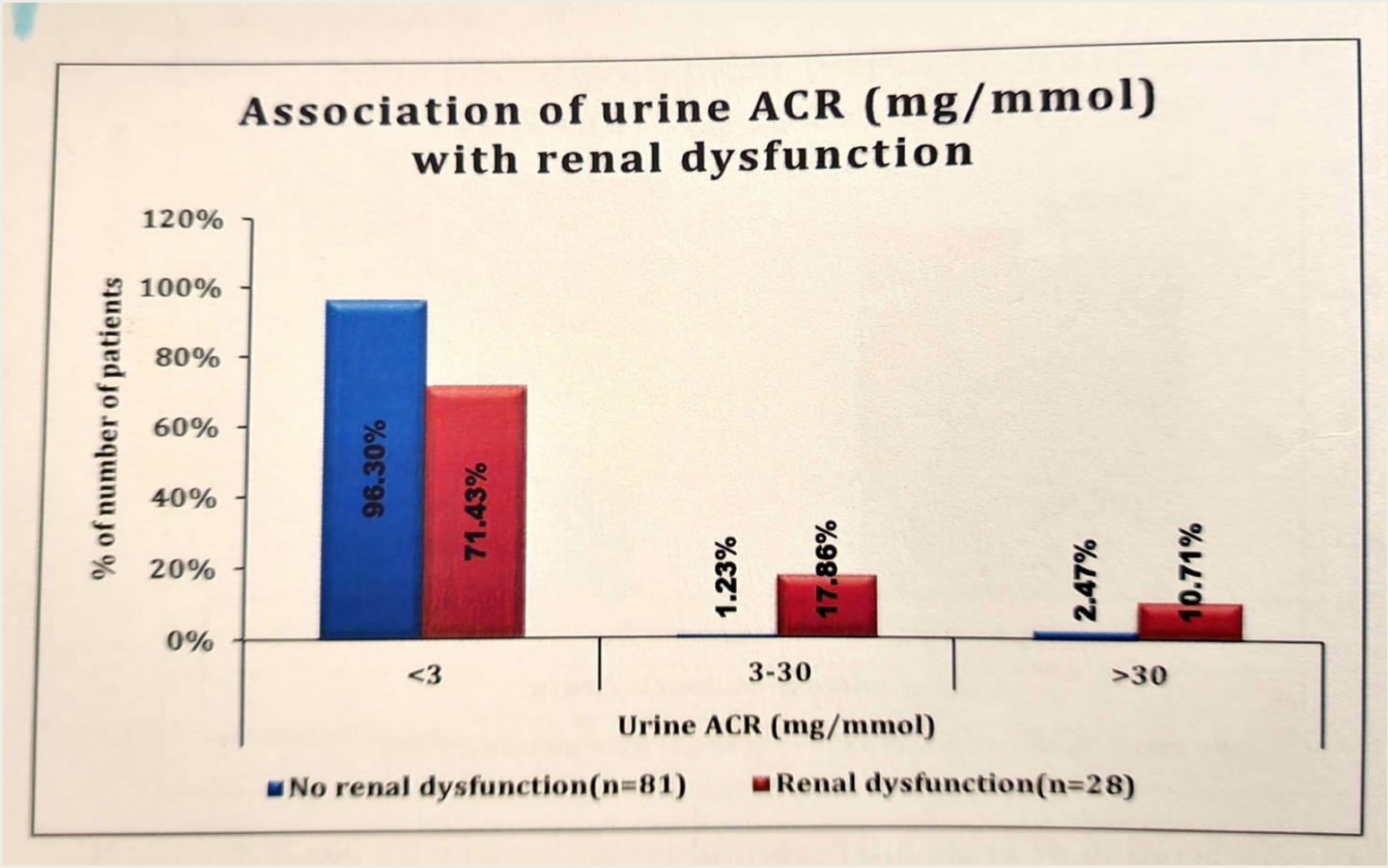
Significant association between S.cystatin C with Renal Dysfunction (1pg/ml rise of S cystatin C inreases the risk of RD by 0.02%)

Correlation between eGFR(MDRD) and S.Cystatin C



Inverse correlation with eGFR and S.cystatin C

Urine ACR with Renal dysfunction



Significant association between UACR and renal dysfunction

- Significant positive correlation seen between Cystatin C with disease activity scores RAPID3, SDAI, VAS.
- No significant correlation seen between eGFR and disease activity as measured by DAS28, RAPID3, SDAI,CDAI, VAS, HAQ-DI
- Higher disease activity may have normal GFR and vice versa.
- Renal dysfunction can happen independent of disease activity.

No significant association of renal dysfunction

- Age
- Gender
- Duration of disease
- Cumulative dose of Mtx, sulfasalazine, HCQ, steroids, NSAID.
- Disease activity scores- DAS 28, RAPID-3, SDAI, CDAI, VAS, HAQ-DI)
- Radiographic changes on Xray bilateral hands.
- USG KUB

To summarize

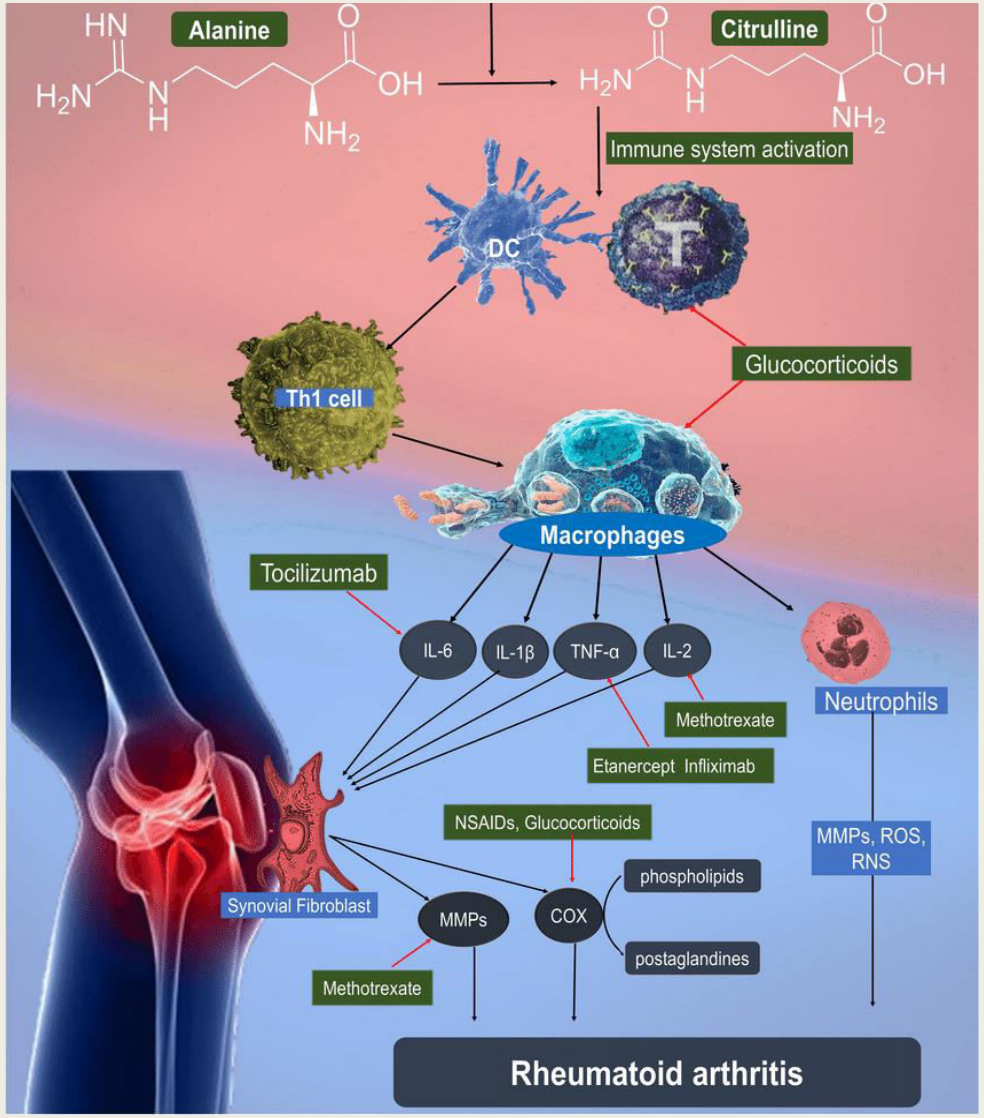
- Renal dysfunction is not uncommon in RA
- The prevalence of renal dysfunction with absolute eGFR < 60 ml/min/1.73 m^2 was found to be 25.69% in patients with RA.
- Albuminuria was observed in 32.14% patients suffering from renal dysfunction, as compared to 3.7% patients without renal dysfunction in our study population.
- Significant association found between Cystatin C and renal dysfunction
- Significant negative association between estimated GFR and Cystatin C
- No significant association between cumulative dose of MTX , sulfasalazine, HCQ, steroids, NSAIDS

1. inflammation- the core pathophysiology of all organ dysfunction in RA being negated by NSAIDs

Renal dysfunction as a part of chronic inflammatory state is being nullified by RA management

2. NSAIDs reduce pain and stiffness which allows the patient to move about , hence helping in reducing obesity which is another chronic inflammatory state.

3.Unknown cellular mechanisms still need to be elucidated about RD in RA



Take Home message

Renal function monitoring should be implemented on regular basis in patients with RA

Cystatin C is a better marker for detecting RD in RA, can replace S. Creatinine .

DMARDS, NSAIDs being not a culprit for RD in RA should be introduced early in the course of disease in well adjusted doses, so as to minimise the state of chronic inflammation.

Early detection of RD can facilitate timely intervention to prevent progression to ESRD


THE
TIME IS
NOW


Thank you