Rheumatoid Arthritis Patients with Undiagnosed Chronic Kidney Disease: A National Retrospective Patient Study

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Abstract

A nationally representative sample of 125 rheumatologists who met minimum volume criteria for total patients and for rheumatoid arthritis (RA) patients participated in the study. Physicians extracted detailed medical history and treatment information from the records of 500 randomly selected and anonymous rheumatoid arthritis patients. Study findings suggest that a substantial proportion of the RA patient population treated by rheumatologists may have early renal involvement or, at the very least, be at high risk of developing CKD. A current glomerular filtration rate (GFR) could be determined for 449 of the 500 RA patients (90%). A total of 298 of these 449 patients (66%) had an abnormal current GFR. Of these 298 patients, only 26 (8.7%) had been diagnosed with chronic kidney disease (CKD). Thus, only 5.2% of the total RA sample had been diagnosed with CKD.

Background and Objectives of Study

Renal involvement is relatively common among rheumatoid arthritis (RA) patients, and this coexisting disease is clinically significant because it worsens the course and mortality of the primary disease (Icardi A, Araghi P, Ciabattoni M, Romano U, Lazzarini P, Bianchi G. *Reumatismo*. 2003;55(2):76-85). Chronic kidney disease (CKD) is a major health problem that often goes undiagnosed and/or unreferred. Webb, Young, and Stevens found that 84.8% of a cohort of moderate to severe CKD patients, identified by serum creatinine (SCr) screening, had not been identified by or referred to renal services (*Am J Kidney Dis.* 2004 May;43(5):825-35). Walter Horl at the University of Vienna concluded from a review of the medical literature that CKD is often inadequately monitored and treated.

The current study was conducted to determine (1) the prevalence of likely renal involvement among RA patients treated by rheumatologists, and (2) procedures used to identify CKD in this patient cohort.

Methodology

Stratified nationally representative samples of 125 rheumatologists extracted detailed medical history and treatment information from the records of 500 randomly selected patients who were being treated or had been treated for rheumatoid arthritis (RA). The last up to four RA patients treated by the physician were selected for the study. Study data were transmitted to researchers by fax or mail. Physician study participants personally treated at least 100 total patients (for any condition) during a typical month, a minimum of 30% of whom had to be RA patients.

Statistical adjustments were made to ensure that each patient represented exactly the corresponding number of patients in the universe of total patients.

Key Findings of Study

- Study rheumatologists collectively estimated they screen 98% of their RA patients for CKD/renal cell insufficiency.
- Study rheumatologists actually screened 85% of the study patients for CKD/renal cell insufficiency.
- In more than three-fifths of the diagnosed cases (62%), the CKD was diagnosed by the responding physician. One in eight of these patients (12%) had the CKD diagnosed by a nephrologist.
- Physicians were asked to rate the severity of their patients' CKD. In almost seven out of ten cases, physicians provided a rating of 'mild" (69%). A rating of "severe" CKD was provided for only one of the 500 cases.
- Using the MDRD method, study researchers could determine a current glomerular filtration rate (GFR) for 449 of the 500 RA patients (90%). A total of 298 of these 449 patients (66%) had an abnormal current GFR.
- Of these 298 patients, only 26 (8.7%) had been diagnosed with chronic kidney disease (CKD). Thus, only 5.2% of the total RA sample (500 patients) had been diagnosed with CKD.

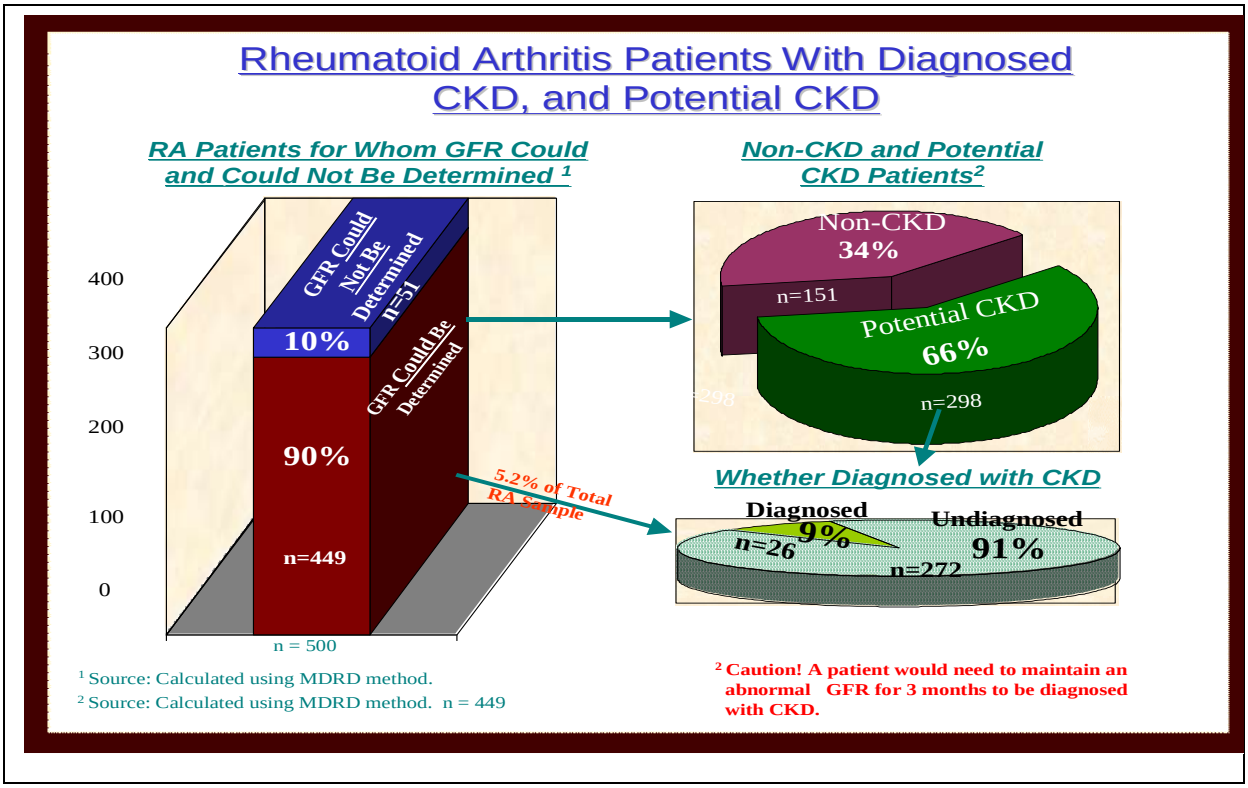
- One-fourth of the 272 patients with an abnormal current GFR who were not among the 26 diagnosed CKD patients had a current GFR <60 mL/min/1.73 m^2, which would place them at either stage 3 CKD (65 patients) or stage 4 CKD (3 patients) should they maintain their respective abnormal GFR for 3 months or longer.

Conclusions

Because a patient must have an abnormal GFR for a minimum of three months to justify a diagnosis of CKD, it was not possible to determine the number of undiagnosed CKD patients among the 272 patients with an abnormal current GFR who were not among the 26 diagnosed CKD patients. Nevertheless, these findings suggest that a substantial proportion of the RA patient population treated by rheumatologists is, at the very least, at high risk of developing CKD (see Figure below).

Study findings also suggest that rheumatologists do not routinely use an accurate screening tool for CKD/renal insufficiency. All of the rheumatologists in the present study reported using serum creatinine levels as an indicator used to identify CKD/renal insufficiency, but only 4% of the rheumatologists reported using GFR.

Levin from the University of British Columbia concluded that "early identification of [CKD/renal insufficiency] patients requires accurate screening tools. As serum creatinine is an unreliable marker of kidney dysfunction, clinicians should focus on the glomerular filtration rate or other markers of true kidney function" (*Nephrol Dial Transplant*. 2001;16 Suppl 7:57-60).



About the Authors

Thomas Orsagh, Ph.D., is an internationally recognized economist who has made numerous scientific contributions during and after his distinguished academic career. Dr. Orsagh attended the Wharton School and obtained a Ph.D. from the University of Pennsylvania. Dr. Orsagh has served on the faculties of the University of Pennsylvania, Lehigh University, the University of Karlsruhe in Germany, and the University of North Carolina in Chapel Hill. He was a Fulbright Research Scholar, a former editor of the **Southern Economics Journal,** and a former member of a national Presidential Task Force.

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