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Economic impact of estimating renal function in patients with systemic lupus erythematosus

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To the Editor,

Kidney injury is one of the most important morbidity and mortality factors in patients with systemic lupus erythematosus (SLE).^{1,2} Glomerular filtration rate (GFR) is the best indicator of renal function, and it is important in the diagnosis, determining the stage, gauging treatment response and dosing medications.³

The National Kidney Foundation (NKF) recommends estimating GFR using creatinine-based equations.^{4,5} On the other hand, the European Consensus of Lupus Glomerulonephritis suggests that renal function in SLE patients should be measured either by serum creatinine levels or by estimating renal function using serum creatinine-based equations, but where GFR is higher than 60ml/min/1.73m², creatinine clearance should be used (CrCl).⁶ In a recent publication, we reported on the high frequency of inappropriate sample collection from SLE patients when CrCl is used.⁷

We took a survey of Mexican rheumatologists to better understand the use of NKF-recommended equations in evaluating renal function in SLE patients.

We used the google.com survey tool to send questionnaires to members of the

Mexican College of Rheumatology in September 2010. We evaluated their demographic data, including sex, years practicing medicine, number of SLE patients evaluated per week and the rheumatologist's method for evaluating renal function in patients with SLE.

We received responses from 45 rheumatologists throughout the country; the mean age of those responding was 40 years, with a mean of 9.5 years practicing medicine. Of those responding, 75.6% were male and 51.2% saw more than 10 SLE patients per week.

Almost half of the rheumatologists (46.7%) use CrCl in all of their patients in order to estimate GFR; 17.8% use it in two-thirds of their patients, and only 13.3% do not use it at all. Only 28.9% of those responding used equations for estimating GFR (MDRD, CKD-EPI, Cockcroft-Gault, others).

According to INEGI (Mexican National Institute of Statistics and Geography), nearly 112 million people lived in Mexico in 2010. As per the Peláez-Ballestas et al study, the SLE prevalence in Mexico is 0.06%.⁸ We evaluated the mean cost of CrCl (serum and urinary creatinine in 24 hours) and the mean cost of measuring only serum creatinine (in order to determine GFR by means of equations) in three laboratories in central Mexico. The difference in cost between taking a single GFR measurement by one method or the other is more than 500 000 dollars if the rheumatologist uses CKD-EPI or MDRD instead of 24 hour CrCl (Table 1).

Despite the evidence suggesting a high frequency of inappropriate sample collecting and the recommendation made

Table 1. Costs associated with a single estimate of GFR in Mexico

	Costs	Population (México)	Population total LES	Cost total
Equations	\$ 47	112.337.000	67.402	\$ 3.167.894
DCr	\$ 160	112.337.000	67.402	\$ 10.784.320
Saving \$				\$ 7.616.426
Saving USD				USD 647.396

\$: Mexican pesos; CKD-EPI: the Chronic Kidney Disease Epidemiology Collaboration equation; CrCl: creatinine clearance. USD: dollars.

by the NKF, Mexican rheumatologists continue to use CrCl to estimate GFR. The importance of disseminating studies in other diseases, in addition to the NKF guidelines, is firstly due to the fact that the methods mentioned above do not require 24 hour urine collection and that health care systems would save thousands of dollars if this practice were generalised (worldwide); considering that a number of controlled international clinical trials use CrCl to estimate GFR.^{9,10}

These findings show that although the guidelines suggest the use of more exact, less expensive methods, Mexican rheumatologists continue to use methods that are both more expensive and less reflective of true GFR. We must promote studies among doctors showing the benefits for patients in terms of both economic sustainability and reproducibility. If our results among Mexican rheumatologists were similar on a global level, the savings incurred by using better estimation methods could amount to millions of dollars.

Conflicts of interest

The authors declare they have no potential conflicts of interest related to the contents of this article.

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Chronic kidney disease in the elderly: the impact of patients' sex
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To the Editor,

In epidemiological studies we generally find a higher prevalence of

chronic kidney disease (CKD) in women than in men, regardless of age.^{1,2} The study by Labrador et al assesses the prevalence of occult renal disease (defined as an estimated glomerular filtration rate (eGFR) below 60ml/min and serum creatinine within the normal range), and the authors found this condition in 43.5% of the women in a group with a mean age of 77 years.³

We therefore propose studying sex as a factor involved in GFR in a cohort of elderly patients with both normal and altered serum creatinine (sCr) levels. We will also analyse the effect of this factor in patients considered as carriers of occult renal disease.

Between January and April 2006, we conducted a cross-sectional study in a population with a mean age of 83 years (range: 69-97 years) that was recruited when patients came in for scheduled check-ups with the Geriatric Medicine and General Nephrology Departments at the General Hospital of Segovia. In this group, 38 patients had sCr within the normal range: Group 1, sCr ≤1.1mg/dl (range 0.7-1.1): 6 males and 32 females; 42 had altered sCr. Group 2, sCr >1.1mg/dl (range 1.2-3): 19 males and 23 females. 3% of the total had diabetes mellitus, and 81.3% had arterial hypertension. GFR was estimated using the abbreviated MDRD method⁴ and the Cockcroft-Gault formula.⁵

Table 1 shows the mean GFR given by the formulae, broken down by group and sex.

Out of the patient total, 56 (70%) had a GFR (MDRD) <60ml/min. Of the patients with a GFR<60ml/min according to MDRD, 18 had sCr within the normal range (100% female), while 38 had a baseline sCr>1.1mg/dl (15 males [39.5%] and 23 females [60.5%], P=.001).

The 18 patients with a normal sCr and GFR by MDRD <60ml/min (occult renal disease) had a mean age of 81.33±6 years.