

LETTER TO THE EDITOR

Game Not Over for Sulodexide

To the Editor:

Professor Lewis presents a collaborative trial adequately powered to assess the efficacy of sulodexide, an extractive glycosaminoglycan, in lowering microalbuminuria in patients with type 2 diabetes mellitus.¹ The results are negative; however, concomitant administration of angiotensin-converting enzyme inhibitors or angiotensin II receptor blockers “at the maximal approved dosage” left little allowance for a superimposed effect of sulodexide, or any other drug. The other sulodexide trial from the Collaborative Study Group, a study on severely macroalbuminuric patients,² confronted sulodexide with an even more impossible task.

The suspicion that sulodexide (the originator) may have no pharmacological activity whatsoever is unjustified. Provided the compound made available for this trial (the biosimilar drug) is equivalent to the originator, its absorption by the oral route, and clinical effects, have been demonstrated.³

Recent studies suggest that sulodexide acts on the microvasculature in a manner not necessarily related to its activities as an antagonist of factor Xa and heparin cofactor II. The agent reduces proteinuria in early kidney injury⁴ and should be tested in prevention of microvascular damage. Therefore, sulodexide maintains scientific and clinical interest and cannot be sentenced to “bite the dust”, as suggested by the editorial⁵ that accompanied the article by Lewis and colleagues.

Sergio Coccheri, MD
University of Bologna Medical School
Bologna, Italy

Acknowledgements

Financial Disclosure: The author declares consultancy relationships and/or honoraria for educational presentations, travel, and accommodation expenses from GlaxoSmithKline, Teofarma, Alfa-Wasserman (which manufactures sulodexide), and Federterme (the Italian federation of spa establishments) and its related research foundation, the Thermal Research Foundation.

References

- Lewis EJ, Lewis JB, Green T, et al; Collaborative Study Group. Sulodexide for kidney protection in type 2 diabetes mellitus with microalbuminuria: a randomized controlled trial. *Am J Kidney Dis.* 2011;58(5):729-736.
- Packham DK, Wolfe R, Reutens AT, et al; Collaborative Study Group. Sulodexide fails to demonstrate renoprotection in overt type 2 diabetic nephropathy [published online ahead of print October 27, 2011]. *J Am Soc Nephrol.* doi:10.1681/ASN.2011040378.
- Coccheri S, Scodotto G, Agnelli G, et al. Sulodexide in the treatment of intermittent claudication. Results of a randomized, double-blind, multicentre, placebo-controlled study. *Eur Heart J.* 2002;23(13):1057-1065.
- Rossini M, Naito T, Yang H, et al. Sulodexide ameliorates early but not late kidney disease in models of radiation nephropathy and diabetic nephropathy. *Nephrol Dial Transplant.* 2010;25(6):1803-1810.
- House AA, Weir MA. Sulodexide for diabetic nephropathy: another one bites the dust. *Am J Kidney Dis.* 2011;58(5):692-694.

Lewis et al declined to respond.

© 2012 by the National Kidney Foundation, Inc.
doi:10.1053/j.ajkd.2011.12.010

RESEARCH LETTERS

Predicting the Number of US Medical Graduates Entering Adult Nephrology Fellowships Using Search Term Analysis

To the Editor:

There has been a worrisome decrease in the number of applicants to nephrology fellowship training programs. First identified in 2008, the number of nephrology applications has been decreasing annually since 2002.¹ Given the annual increase in kidney disease and projected shortage of nephrologists, this downward trend is concerning. Various studies have suggested that a lack of interest in nephrology is a key factor in this decrease.¹⁻³ Parker et al² have used the percentage of adult nephrology positions filled by US medical graduates as a surrogate marker of nephrology interest, but this measurement is a late indicator. Investigations have suggested that the frequency of internet search term use can serve as a leading and accurate indicator of future events.^{4,5} We hypothesize that the frequency of nephrology-specific search term queries can predict the percentage of US medical graduates entering nephrology fellowships.

The frequency of queries using the search term “nephrology” was analyzed from 2004 to mid-September 2011 using Google Insights for Search. The terms “gastroenterology,” “oncology,” “endocrinology,” and “cardiology” were analyzed as controls. The frequency of each search term was restricted to results in the Health Education and Medical Training category. Frequencies were converted into yearly search term interest levels (STILs) by Google Insights for Search. STILs ranged from 0-100, with the latter indicating the greatest interest for the search term. A linear regression model was used to investigate the relationship between average yearly STILs and annual percentage of US medical graduates entering each fellowship listed in the Graduate Medical Education Track Database.⁶

We observed a decrease in yearly STILs for “nephrology,” from 51 in 2004 to 31 in 2011, with the greatest monthly STIL occurring in June 2004. The linear regression model showed the following relationship between the STIL for “nephrology” at year t and fraction of fellowship positions filled by US medical graduates at year $t + 1$: $\text{Fraction of positions filled by USMGs}_{(t+1)} = 0.00904 \times \text{STIL}_{(t)} + 0.08167$, where USMG is US medical graduate.

This relationship showed a strong correlation during the study period ($r = 0.94$; $P < 0.01$). The regression model also showed a significant relationship for the control specialties (gastroenterology: $r = 0.89$; $P < 0.05$; oncology: $r = 0.84$; $P < 0.05$; endocrinology: $r = 0.81$; $P < 0.05$; and cardiology: $r = 0.83$; $P < 0.05$). Table 1 lists the predicted values of US medical graduates filling fellowships in 2011-2012 and 2012-2013. The model anticipates a continued decrease in US medical graduates entering adult nephrology fellowships.

We find that interest levels for the search term “nephrology” accurately predict the percentage of US medical graduates entering nephrology fellowship programs. The percentage of fellowships filled by US medical graduates is a meaningful but late measure of nephrology interest. An educator would have to wait until 2013 to learn the percentage of adult nephrology fellowship positions filled by US medical graduates who graduated in 2011. Our forecasting model can predict the percentage of fellowship positions filled by US medical graduates 2 years earlier by allowing educators to use STILs from the same calendar year. This reduction would allow more efficient resource allocation for recruitment, quicker assessments of interventions, and timely modifications to efforts designed to increase interest.