

COMMENTS AND RESPONSES

Incidence of Treatment for End-Stage Renal Disease Among Individuals With Diabetes in the U.S. Continues to Decline

Response to Villar, McDonald, and Couchoud

The comment by Villar et al. (1) about our article (2) on diabetes-related end-stage renal disease (ESRD) highlights the data limitations of renal registries. Our article acknowledged these as well. We reported that the age-adjusted diabetes-related ESRD incidence decreased from 1996 to 2006; among those aged <45 years, diabetes-related ESRD incidence concurrently decreased. We used the U.S. Renal Data System (USRDS) to determine the number of individuals with diabetes as the primary diagnosis who initiated ESRD therapy and National Health Interview Survey (NHIS) data to estimate the population with diagnosed diabetes. In USRDS, the physician's assessment, which may not reflect the actual ESRD etiology, determines the primary cause of ESRD. As Villar et al. pointed out, diabetes is often linked to ESRD risk factors, such as hypertension, and misclassified primary diagnoses may have affected observed trends. NHIS data are self-

reported and do not include diabetes type.

We suggested that the declining trends among those aged <45 years may be related to the effect of glycemic control interventions among those with type 1 diabetes. Intensive insulin therapy reduces the risk of kidney disease in individuals with type 1 diabetes (3), and the proportion of younger individuals with diabetes achieving glycemic control has increased significantly between 1999 and 2002 and between 2003 and 2006 (4). ESRD often begins 15–20 years after developing diabetes (5); thus, individuals with ESRD aged <45 years would likely have developed diabetes by age <30. Although disease onset can occur at any age, type 1 diabetes usually strikes children and young adults. In 2001, among U.S. youth with diabetes aged <20 years, type 1 was more common than type 2 diabetes in all racial and ethnic groups except American Indians (6).

Registries such as USRDS are useful for epidemiological research and surveillance. Despite data limitations, our findings indicate encouraging trends in ESRD incidence in the diabetic population. However, we agree with Villar et al. that epidemiologic studies of ESRD and diabetes would benefit from clinical data determining ESRD etiology and the type of diabetes.

NILKA RÍOS BURROWS, MPH
YANFENG LI, MPH
LINDA S. GEISS, MA

From the Division of Diabetes Translation, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia.

Corresponding author: Nilka Ríos Burrows, nrrios@cdc.gov.

DOI: 10.2337/dc10-0244

© 2010 by the American Diabetes Association. Readers may use this article as long as the work is properly cited, the use is educational and not for profit, and the work is not altered. See <http://creativecommons.org/licenses/by-nc-nd/3.0/> for details.

Acknowledgments—No potential conflicts of interest relevant to this article were reported.

References

1. Villar E, McDonald SP, Couchoud C. Incidence of treatment for end-stage renal disease among individuals with diabetes in the U.S. continues to decline: response to Burrows, Li, and Geiss (Letter). *Diabetes Care* 2010;33:e69. DOI: 10.2337/dc10-0074
2. Burrows NR, Li Y, Geiss LS. Incidence of treatment for end-stage renal disease among individuals with diabetes in the U.S. continues to decline. *Diabetes Care* 2010;33:73–77
3. The Diabetes Control and Complications Trial Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med* 1993;329:977–986
4. Cheung BM, Ong KL, Cherny SS, Sham PC, Tso AW, Lam KS. Diabetes prevalence and therapeutic target achievement in the United States, 1999 to 2006. *Am J Med* 2009;122:443–453
5. Nelson RG, Knowler WC, Pettitt DJ, Saad MF, Bennett PH. Diabetic kidney disease in Pima Indians. *Diabetes Care* 1993;16:335–341
6. SEARCH for Diabetes in Youth Study Group, Liese AD, D'Agostino RB Jr, Hamman RF, Kilgo PD, Lawrence JM, Liu LL, Loots B, Linder B, Marcovina S, Rodriguez B, Standiford D, Williams DE. The burden of diabetes mellitus among US youth: prevalence estimates from the SEARCH for Diabetes in Youth Study. *Pediatrics* 2006;118:1510–1518