The Official Journal of the National Kidney Foundation
AJKD
AMERICAN JOURNAL OF KIDNEY DISEASES
VOL 56, NO 2, AUGUST 2010

National Kidney Foundation KDOQI
KDOQI COMMENTARY

KDOQI US Commentary on the 2009 KDIGO Clinical Practice Guideline for the Care of Kidney Transplant Recipients

Margaret Bia, MD,[1] Deborah B. Adey, MD,[2] Roy D. Bloom, MD,[3] Laurence Chan, MD,[4] Sanjay Kulkarni, MD,[5] and Steven Tomlanovich, MD[6]

In response to recently published KDIGO (Kidney Disease: Improving Global Outcomes) guidelines for the care of kidney transplant recipients (KTRs), the National Kidney Foundation's Kidney Disease Outcomes Quality Initiative (KDOQI) organized a working group of transplant nephrologists and surgeons to review these guidelines and comment on their relevance and applicability for US KTRs. The following commentaries on the KDIGO guidelines represent the consensus of our work group. The KDIGO transplant guidelines concentrated on aspects of transplant care most important to this population in the posttransplant period, such as immunosuppression, infection, malignancy, and cardiovascular care. Our KDOQI work group concurred with many of the KDIGO recommendations except in some important areas related to immunosuppression, in which decisions in the United States are largely made by transplant centers and are dependent in part on the specific patient population served. Most, but not all, KDIGO guidelines are relevant to US patients. However, implementation of many may remain a major challenge because of issues of limitation in resources needed to assist in the tasks of educating, counseling, and implementing and maintaining lifestyle changes. Although very few of the guidelines are based on evidence that is strong enough to justify their being used as the basis of policy or performance measures, they offer an excellent road map to navigate the complex care of KTRs.
Am J Kidney Dis 56:189-218.

INDEX WORDS: Kidney transplant recipients (KTRs); calcineurin inhibitor (CNI); mycophenolate compound (MPA compound); inhibitor of mammalian target of rapamycin (mTOR inhibitor); KDIGO; KDOQI.

In 2007, there were 16,119 kidney transplants performed in the United States (10,082 deceased donor and 6,037 living donor)[1] and 158,739 US patients living with a functioning kidney allograft. KDIGO (Kidney Disease: Improving Global Outcomes) is an international initiative formed to "improve the care and outcomes of kidney disease patients worldwide

From the [1]Yale School of Medicine, New Haven, CT; [2]University of Vermont/Fletcher Allen Health Care, Burlington, VT; [3]Hospital of the University of Pennsylvania, Philadelphia, PA; [4]University of Colorado Denver, Aurora, CO; [5]Yale School of Medicine, New Haven, CT; and [6]University of California, San Francisco, CA.

Originally published online as doi:10.1053/j.ajkd.2010.04.010 on July 2, 2010.

Reprint requests to Kerry Willis, PhD, National Kidney Foundation, 30 E 33rd St, New York, NY 10016. E-mail: kerryw@kidney.org

Address correspondence to Margaret Bia, MD, Section of Nephrology, Department of Internal Medicine, Yale School of Medicine, PO Box 208029, New Haven, CT 06520-8029. E-mail: margaret.bia@yale.edu

0272-6386/10/5602-0002$36.00/0
doi:10.1053/j.ajkd.2010.04.010

through promoting coordination, collaboration, and integration of initiatives to develop and implement clinical practice guidelines."[2] To this end, a KDIGO work group has recently published a new comprehensive set of recommendations for the care of kidney transplant recipients (KTRs).[3] The last clinical practice transplant guideline for US patients was published in 2000 by the American Society of Transplantation (AST) and was based primarily on expert opinion. Previous KDIGO practice guidelines have been published for the care of patients with hepatitis C and chronic kidney disease (CKD)[4] and CKD–mineral and bone disorders (CKD-MBD).[5] Because global guidelines need to be adapted to the regional context in which they are used, the National Kidney Foundation's Kidney Disease Outcomes Quality Initiative (KDOQI) program organized a work group of transplant nephrologists and surgeons to review the newest KDIGO guideline and comment on the relevance and applicability for US KTRs.

KDIGO GUIDELINE PROCESS

The KDIGO transplant guideline concentrated mainly on aspects of transplant care most important to this population in the posttransplant period, such as immunosuppression, infection, malignancy, and cardiovascular care. The guidelines do not address pretransplant evaluation or issues related to patients returning to dialysis therapy with a failed allograft. The target audience for the guideline is physicians, coordinators, pharmacists, and other medical professionals who directly or indirectly care for KTRs. The KDIGO guideline was based on published evidence and graded according to the strength of the data (Fig 1). Because of the paucity of evidence in many areas, only 25% of recommendations were graded 1. Furthermore, evidence for only 2% of recommendations were graded A, 13.6% were graded B, 38.9% were graded C, and 45.5% were graded D.[3] The KDIGO authors make it clear that for guidelines in which the evidence was meager, they chose to give guidance rather than remain silent. They also make it clear that the guideline was not developed for regulatory agencies; this is important to keep in mind because so few of the recommendations are based on evidence that is strong enough to justify their being used as the basis of policy or performance measures.

KDOQI PROCESS FOR INTERPRETATION OF THE KDIGO GUIDELINE IN THE CARE OF US TRANSPLANT PATIENTS

Differences in target population, individual patient immunologic risk, prevalence of concomitant diseases (such as diabetes mellitus), availability of resources, and systems of payment must all be considered in interpreting global recommendations to specific regions. The following commentaries on the KDIGO guideline represent the consensus of a work group convened by KDOQI to evaluate the relevance and applicability of the guideline to US patients and practices. It is beyond the scope of our review to make a comment on each of the more than 150 KDIGO recommendations. We chose instead to address guidelines for which we questioned applicability to US KTRs, as well as those that we believed needed reinforcement or clarification. Emphasis is placed not on critiquing the guidelines, but on determining their appropriateness for our US patients. The relative importance of a recommendation, relevance to US patients, comparison to

Grade*	Wording
Level 1	"We recommend"
Level 2	"We suggest"

Grade for Quality of Evidence	Quality of Evidence
A	High
B	Moderate
C	Low
D	Very low

Figure 1. Rating guideline recommendations. Within each recommendation, the strength of recommendation is indicated as Level 1, Level 2, or Not Graded, and the quality of the supporting evidence is shown as A, B, C, or D. *The additional category Not Graded typically was used to provide guidance based on common sense or when the topic does not allow adequate application of evidence. The most common examples include recommendations regarding monitoring intervals, counseling, and referral to other clinical specialists. Ungraded recommendations generally are written as simple declarative statements, but are not meant to be interpreted as being stronger recommendations than Level 1 or 2. Adapted from the KDIGO transplant guideline[3] with permission of KDIGO.