

The Living Donor Who is at Risk for PKD

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ISSUE

How does one screen a potential donor at risk for PKD?

DATA

Potential donors whose parents or siblings have PKD have a 50% chance of having PKD themselves. Ultrasound can be used to rule out PKD in most persons at risk for the disease. For example, a potential donor aged 40-59, with < 2 cysts in each kidney rules out PKD (1). A potential donor 30-40 yrs old with less than 3 cysts in total also rules out PKD. However, ultrasounds are technician dependent and less sensitive for PKD in younger donors, so these ultrasound criteria are usually not sufficient to rule out PKD in potential donors younger than 30.

MRI testing may also be used: A recent 2015 KDIGO report (2) states that MRI of the kidneys is the best screen for PKD: "Conventional US is suboptimal for disease exclusion in subjects at-risk for ADPKD who are younger than 40 years, often evaluated as potential living kidney donors. In this setting, the finding of fewer than five renal cysts by magnetic resonance imaging (MRI) is sufficient for disease exclusion."

In younger candidates for donation, in which imaging is not definitive, genetic testing can be used to rule out PKD in a potential donor when the mutation is successfully identified in the affected family member. When the mutation is not identified in the affected family member, it has been recommended to defer donation (1)

RECOMMENDATION

1. A potential donor at risk for PKD should have an ultrasound early in the evaluation, as it may confirm the disease and an alternate donor can be

considered. If ultrasound is equivocal, or the patient is 18-30 years old, genetic testing or MRI may be used to rule out PKD.

2. Genetic testing is only useful in screening donors when the mutation in the affected family member is successfully identified.

3. KDIGO 2015 emphasizes the utility of MRI: fewer than 5 renal cysts on MRI rule out PKD in the potential donor. This may be especially useful in cases of indeterminate genetic testing. These criteria are for MRI and are not, as yet, translatable to CT.

REFERENCES

1. Huang, E., Samaniego-Picota, M., McCune, T., Melancon, J.K., Montgomery, R.A., Ugarte, R., Kraus, E., Womer, K., Rabb, H., and Watnick, T. 2009. DNA testing for live kidney donors at risk for autosomal dominant polycystic kidney disease. *Transplantation* 87:133-137.

2. Chapman, et al. Autosomal-dominant polycystic kidney disease (ADPKD): executive summary from a Kidney Disease: Improving Global Outcomes (KDIGO) Controversies Conference [Kidney Int.](#) 2015 Jul;88(1):17-27. doi: 10.1038/ki.2015.59. Epub 2015 Mar 18.

Note: The recommendations in these chapters are the opinions of the Living Donor Community of Practice of AST. They are not meant to be prescriptive and opinions by other groups or institutions may be equally valid.