Advances in Kidney Care and Transplantation

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The last couple of years has brought many changes to the treatment and prevention/delay of kidney disease. One group of drugs is the SGLT 2 inhibitors. They started life as simply a drug for type II diabetes. They make the kidneys pee out some glucose and that hopefully would improve blood sugar control. It has turned out that there are many other effects that blocking SGLT 2 has. It now has been shown to delay the progression of kidney disease in both diabetes and non-diabetic kidney disease. It also reduces the incidence of major cardiovascular events like heart attack and stroke in adult populations. Although on the surface, you would think that a person whose native kidneys have cystinosis (and leak sugar anyway) might not benefit from this class of medications, there are theoretical reasons to think the patients would. Part of this is the fact that there is such an improvement in heart disease when it is not obvious how the slightly reduced blood sugar would affect the heart. I am now seeing patients with cystinosis on these drugs prescribed by forward thinking nephrologists.

Another group of agents which have the potential to be blockbusters are the GLP-1 drugs. We have all heard about Wegovy (semaglutide) and Mounjaro (tirzepatide), their expense, the controversy about whether weight loss is something that chronic drug therapy should play a role in etc. In addition to just the weight loss, there may also be other effects directly on the kidney and on the heart so may be relevant even for patients who do not struggle with obesity. Indeed, for people living with cystinosis who have already received a kidney transplant, both drugs might be very useful to protect and preserve kidney function and keep the patient safe from complications of chronic kidney disease like heart attack and stroke.

Other advances include the identification about how important it is to maintain healthy iron stores in people with chronic kidney disease. Large studies have shown that patients who have low iron levels (even if they are not anemic) have increased risks of heart failure. And anemia hastens the loss of kidney function in people living with a kidney transplant. We are starting to see new iron supplements which are better tolerated, and a movement toward intravenous iron repletion which can be used once in a while to optimize the body stores when oral medications are not tolerated or inadequate.

Over the last couple of years there has been a change in how we estimate that GFR (kidney function) which is used to determine when adult patients can go on the list for a kidney transplant. Previously, a factor that included race was included in the formula. This had a high risk of causing inequitable care, because of the underlying assumptions that were made (with the best of intentions) and the development of these equations that require race. Now that race has been removed from these equations there has been a recalculation of the waiting time for people who were affected.

Also, under the topic of equity, we have good news and bad news. In the pediatric kidney transplant world, the rates of deceased donor kidney transplants for all children have been slowly dropping. When assessed by the number of kidney transplants per hundred pediatric waiting years there are less deceased donor kidney transplants. But on the positive side, the inequity between the waiting time between people of black or Hispanic race and white races has disappeared. Up to 2014, white children waited a much shorter time on average on dialysis than black children for their kidney transplant. That now has been eliminated by changes in the allocation system.

As we recognize children are waiting longer and longer for deceased donor kidney transplants, we are opening the potential to use kidneys that we would have refused to use just a few years ago. We now are accepting older living donors, blood group mismatches, donors that are positive for cocci or toxoplasmosis or tuberculosis, where we have treatments of these infections to eliminate the risk of transmission to the child recipient. We also are encouraging more and more parents and other potential living donors to consider being involved in the National Kidney Registry if they can't directly give their own kidney to their child. Some living donors have too many arteries or veins and their child is just too small to take a surgical risk. Some living donors have a blood group mismatch. Previously that would be often where this would end and the child would have to get on the waiting list for a deceased donor. Now we are emphasizing more and more that by contributing that kidney to the national pool, their child will get a voucher, so when their child needs a kidney they can get a living donor kidney from the pool which is almost for sure going to be significantly better than any deceased donor kidney they could have gotten. If you know that your child will definitely need a kidney transplant, in even 5 or 10 years from now, you can donate now while you're young and healthy and can recover more easily. Then, when your child needs a kidney transplant you won't also be recovering from your own surgery and you can devote all your attention to your child when they get theirs.

And don't get me started about pig kidneys…

These are exciting times with clear benefit to the patients and their families.