

Preventing Hypoxic Injury in Transplanted Kidneys

By Gabrielle Johnston, MPH | January 03, 2018

A Nephrology laboratory at University of California San Diego School of Medicine is currently investigating possible interventions to help prevent and treat hypoxic kidney injury to improve outcomes for kidney transplant patients. The lab, led by principal investigator Dianne McKay, MD, explains why it is important to understand these injuries and some interesting places they are finding answers.



Question: Why is understanding hypoxic injury important for transplantation?

Answer: All organs used for transplantation undergo hypoxic injury because the removal of the organ from its host disrupts the blood supply. It only takes a few minutes without blood flow for cells to begin to die and to impair organ function. Our laboratory is investigating a number of possible interventions that could be used to help prevent this early pre-transplant injury and improve outcomes in transplantation. Ideally, we would like to prevent the injury by administering a targeted drug. Drugs that target the immune system are showing the most promise to aid in preventing this type of injury.

Q: Given that there are many unknowns around this, are there any unusual places you are looking for greater insight on how to prevent hypoxic injury in kidneys?

A: Some of the most promising research being conducted in my lab at UC San Diego School of Medicine is focused on understanding the way kidneys are protected naturally in hibernating animals. For example, when animals hibernate, their heart rates slow dramatically, essentially cutting off blood supply to their kidneys; however, upon waking there is no damage to their kidneys. By understanding the processes that make this true, we are hoping to understand how to prevent hypoxic injury in human kidneys.

Q: What is the most promising finding that will allow for better care of kidney transplant patients?

A: We are seeing the most hope to prevent hypoxic injury by looking at the immune system. Current research suggests that the immune system could be a viable predictor in hypoxic kidney injury. It is very important to get a better understanding of the critical function of this system and the role it plays pre-transplant.

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