Monoclonal antibodies cut ischemia-reperfusion injury

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(HealthDay)—Anti-CD47 monoclonal antibody (CD47mAb) therapy reduces ischemia-reperfusion injury of renal allografts in an animal transplantation model, according to a study published online Oct. 31 in the *American Journal of Transplantation*.

Min Xu, M.D., Ph.D., from the Washington University School of Medicine in St. Louis, and colleagues investigated whether blockade of the CD47 signaling pathway could reduce ischemia-reperfusion injury (IRI) of renal allografts donated after cardiac death (DCD) in a porcine animal model of transplantation. Renal allografts were subjected to 30 minutes of warm ischemia and 3.5 hours of cold ischemia followed by perfusion with either a humanized CD47mAb (treatment group; n = 4) or Histidine-Tryptophan-Ketoglutarate solution (control group; n = 4).

Using *in vivo* imaging, the researchers found that CD47mAb-treated organs had greater and more uniform reperfusion. The treatment group had lower creatinine and blood urea nitrogen values on post-transplant days three to five compared with the control group. There was a significant decrease of acute tubular injury upon histological examination of allograft tissues in the CD47mAb-treated group versus controls. CD47mAb treatment also significantly decreased gene expression related to oxidative stress (*sod-1*, *gpx-1*, and *txn*) and the inflammatory response (*il-2*, *il-6*, *inf-g*, and *tgf-b*) and reduced protein levels of BAX, Caspase-3, MMP2, and MMP9.

"These data demonstrate that CD47mAb blockade decreases IRI and subsequent tissue injury in DCD renal allografts in a large animal transplant model," conclude the authors.

Several authors disclosed financial ties to biopharmaceutical companies, including Tioma Therapeutics, which provided the monoclonal antibodies.

More information: Abstract
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