Lung transplant criteria biased against shorter patients

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Short people have several health advantages over tall people, including lower risk for cancer and heart disease, and longer life expectancy. But there's at least one health-related downside to being small: the odds of getting a lung transplant are considerably lower.

According to a report by Columbia University Medical Center (CUMC) researchers, adult lung transplant candidates of short stature receive lung transplants at lower rates—and have higher rates of death and respiratory failure while awaiting a transplant— compared to those of average height. Women are particularly affected by this disparity, since they are generally shorter than men.

The study was published today in the online edition of the *American Journal of Respiratory and Critical Care Medicine*.

"Surgeons commonly try to match small transplant candidates with small donor lungs, because they believe it leads to better outcomes," said study leader David J. Lederer, MD, MS, an associate professor of medicine and epidemiology at CUMC. "But the latest evidence indicates that this approach causes short people to get fewer transplants and have worse outcomes. Small recipients can cope with larger lungs, and surgeons can reduce the size of lungs before transplant, with good results. So, there's no scientific or medical reason for this bias against shorter people."

The CUMC team analyzed data on 13,346 adults placed on the lung transplant waiting list in the U.S. between 2005 and 2011. People 5'4" or

smaller had a 34 percent lower rate of transplantation compared to those 5'7" to 5'9-1/2". Short stature was also associated with a 62 percent higher rate of mortality or removal from the waitlist due to clinical deterioration. The rate of respiratory failure while awaiting a transplant was 42 percent higher.

There are several ways transplant centers can reduce this disparity, according to the CUMC researchers. They can give slightly oversized lungs to shorter patients by surgically downsizing donor lungs, a practice that has led to better outcomes than the use of size-matched donor organs. They can also perform lobar transplants, in which two living donors each donate a lung lobe to a patient.

Policymakers could address the disparity by altering the national lung allocation system, which doesn't take height into account. The allocation system distributes donor organs based on the severity of each candidate's illness and his or her chance of success following a lung transplant. "Our data suggest that it may be time to revise how we prioritize transplant candidates, to ensure equal priority is given to people of shorter stature," said lead author Jessica L. Sell, MPH, data analyst at CUMC. "Addressing the height disparity might also help correct the gender disparity that is evident in waiting list outcomes as well."

In 2014, 1,880 adults and 45 children underwent lung transplantation in the U.S., and 2,584 persons were added to the waiting list. As of April, 2015, there were 1,613 candidates awaiting a lung transplant.

More information: *American Journal of Respiratory and Critical Care Medicine*, www.atsjournals.org/doi/abs/10 … -1279OC#.VknzMq6rQUE

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