Policy of including smokers in donor pool improves survival rates for patients on lung transplant waiting lists

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New research shows that lung transplant patients who receive the lungs of smokers have a better overall chance of survival than those who remain on waiting lists, despite the fact that they tend to survive for a shorter period after transplantation than those who receive the lungs of non-smokers. The findings, published in an Article Online First in The *Lancet*, may prove controversial following media reports in recent years describing how some transplant patients have died after receiving smokers' lungs.

"Our data show that patients awaiting lung transplantation in the UK are likely to survive longer if they are willing to accept lungs from any suitable donor, irrespective of smoking history…donors with a positive smoking history provide nearly 40% of the lungs available for transplantation. Rejection of this donor-organ resource would increase waiting-list mortality and is ill-advised", said lead author Professor Robert Bonser, of the Queen Elizabeth Hospital, Birmingham and University of Birmingham, UK.

Although the authors acknowledge the adverse effect on patients' survival time when accepting the lungs of smokers, their results nonetheless suggest that the UK's current selection policy of using organs from both smoking and non-smoking donors improves the survival rates for patients registered for lung transplants and should be continued.

Researchers used information from the UK Transplant Registry and Office of National Statistics to examine the survival rates for 2181 adult UK patients awaiting lung transplants between July 1, 1999 and Dec 31, 2010. Of 1295 lung transplants that took place during this period, around 2 in 5 came from donors with a history of smoking.

Analysis showed that those receiving lungs from smokers were 46% more likely to have died three years after transplantation than those receiving lungs from non-smokers. Compared to those who remained on the waiting list during the study period, the chance of death after registration was 21% lower for patients who received lungs from smokers.

The authors found that the effects were particularly pronounced for patients suffering from septic lung disease and fibrosis, with septic lung disease patients experiencing a 40% increase in survival and fibrosis patients a 61% increase in survival when the donor pool includes the lungs of smokers rather than excluding them.

However, the authors highlight the importance of fully informing patients of the effects of accepting a smokers' lungs, pointing out that "Although lungs from such donors are associated with worse outcomes, the individual probability of survival is greater if they are accepted than if they are declined and the patient chooses to wait for a potential transplant from a donor with a negative smoking history. This situation should be fully explained to and discussed with patients who are accepted for lung transplantation".

The authors conclude that "This study establishes that, although…donor smoking history adversely affects recipients' survival, not to use such donors would increase overall mortality by compromising patients' survival from waiting-list entry."

In an accompanying Comment, Dr Shaf Keshavjee and Dr Marcelo Cypel of the Toronto Lung Transplant Program, University Health Network, Toronto, Ontario, Canada, point out that although the results have clear implications for the UK, "It is

important to realise that the relation between risk of dying on the waiting list and the benefit of accepting a transplant from a donor with a substantial smoking history can vary by country and centre". They go on to highlight the fact that in the UK, more than 80% of lungs from brain death and cardiac death multiorgan donors are declined for transplantation, suggesting that research is needed to develop techniques to repair damaged lungs that could be used to boost the donor pool.

More information:
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