

Lung Utilisation: Comparison with French Data

Any analysis of the appropriate use, or otherwise, of donor organ is dogged by difficulties defining a “good organ” and what might be regarded as acceptable levels of use.

The French Agence de la Biomedecine (ABM), which has some analogies to ODT, has published criteria for Standard, Extended and Marginal donor lungs. A Standard lung is defined as:

- Age < 55
- Non-Smoker
- Chest X-ray described as “normal”
- At least one arterial PO₂ > 40 KPa
- No history of Aspiration

In France, utilisation of these lungs is of the order of 90%. It applies only to lungs from DBD donors.

All of this information is contained on EOS. Most of it is complete for most donors, although the history of aspiration is a blank in about 20%. The breakdown of missing data is:

Proportion of Missing data:

- | | |
|----------------------------------|-----|
| • Age | 0% |
| • Non-smoker/Smoker | 1% |
| • No aspiration/Aspiration | 20% |
| • Normal/abnormal X-ray/No X-ray | 13% |
| • Max PO ₂ (KPa) | 6% |

We have previously examined utilisation rates for these lungs over the past few years in the UK. In very broad terms, for the years 2009-2013, there were 335 DBD lungs which fulfilled all the criteria, and we only used 205, ie 61%. 130, or about 25 a year, were not used. Lungs where age, PO₂, smoking history and chest-X-ray description were missing were excluded completely.

Because a history of aspiration is softer data, if it was simply not mentioned, but the other criteria were met, a separate, expanded cohort was available for analysis.

Utilisation in 2014

For this exercise, lungs donated in 2014 were analysed. There were a total of 77 donors which either met all the criteria or had only aspiration data missing. 45, (58%) were transplanted, and 32 not.

If only lungs with a documented lack of aspiration were included, we are down to 58 Standard lungs, of which 35 (60%) were transplanted.

A deeper analysis of the 23 apparently ideal donors from whom no lung was taken was performed. There were some where identifying a suitable recipient *might* be difficult. These included, two small children, aged 16 and

24 months, 3 blood group AB donors (two in their 50's), and no less than 8 out of the 23 were >180cm tall. But 7 out of the 35 transplanted were also >180cm tall.

4 Donors had potential for increased risk.

- One 50 year old female had an 8 week history of more than 2 stone weight loss
- One 24 year old male died of a heroin overdose, and a history of high-risk behavior – IV drug use, time in prison and sex with drug users. But all virology serologically negative
- One grade 4 Astrocytoma (risk of transmission of 2.2%, according to SaBTO advice)
- One grade 3 Astrocytoma (risk of transmission of <2%)
- One death following Hanging

No others had important viral serology. None had a history of lung disease beyond asthma.

A number were turned down on function, or at inspection. This might suggest poor assessment, or be the result of poor donor management.

The number of larger donors in the group suggests good intentions with regard to lung reduction and lobar transplants remain good intentions.

Examples of lungs turned down will be presented.

The detailed analysis of decision making is exceedingly difficult at a distance, both geographical and temporal, and without knowing of recipient-end factors. But the utilisation of these ostensibly very good donors has remained around 60% for more than 5 years, and is significantly poorer than in France.

At the very least, turn down of these well-defined lungs should be a part of centres' donor audit. There is an argument for centres being asked to provide reasons for turning down such lungs to CTAG, for a trial period. We might uncover poor donor management, but there might also be lessons for organ allocation.

Prof John Dark
National Clinical Lead for Governance and Organ Utilisation