

Thursday, 29 January, 2015

Donated organs are a rare and precious gift — but, unfortunately, some can't actually be used because they don't offer much hope of a successful transplant. An EU-funded research project focusing on kidneys and livers has set out to improve the odds.



[1]

Removal of kidney holder from the Kidney Assist transportable organ preservation system

The [COPE](#) [2] project is exploring better ways to protect donor kidneys and livers during removal and transport to the recipient. It has set up Europe's largest-ever clinical trials, comparing key strategies for the preservation of these organs using novel technologies prior to transplant.

These studies will involve about a thousand patients in five countries. They will provide the data needed to assess the merits of several proposed improvements.

The techniques being trialled could reduce the risk of damage to donated organs during the transplant process, or even help to reverse some of the damage an organ may already have sustained. They could, therefore, boost the viability of donated organs and help to ensure that more of them can actually be used to save lives.

Ice box revisited

“There is a persistent shortage of donor organs,” says Professor Rutger Ploeg, the project coordinator. “As a result we have a lot of patients who die on the waiting list. And so centres have come to accept higher-risk organs, for example from older donors.” Such decisions, he adds, must be considered carefully — but where there is an urgent need for a transplant, a higher-risk donor is better than none.

The challenge, therefore, is to avoid adding to the risk. “Currently,” Ploeg explains, “we flush special fluids called cold storage solutions through the organ, which is then submerged in a plastic bag, transported to the recipient centre on ice in a box, and implanted.” However, other approaches could offer better chances of keeping the organ in top form for transplantation.

Warm livers come in from the cold

COPE’s liver trial focuses on the advantages of warm perfusion compared to the current cold storage method. Instead of an ice box, this technique involves a machine that keeps the liver perfused with blood at body temperature.

The device is compact enough for transport across long distances in a small van and can maintain the organ for up to 20 hours. There are also indications that the warm blood perfusion enables the organ to start repairing itself.

COPE’s other two trials are dedicated to kidneys. One of these explores the benefits of reconditioning kidneys after storage on ice by perfusing them with a cold, oxygenated solution.

The other dispenses with the ice box altogether. It relies on machine-assisted cold perfusion throughout the whole process leading up to implantation and examines the benefits of oxygenating the liquid.

How to spot a happy kidney

The COPE partners are also experimenting with further advances. Several centres involved in the project are carrying out innovative experiments to search for better solutions and novel oxygen-carrying compounds at different temperatures. In addition, the partners have set up a biobank of blood, urine and tissue samples.

These samples will be analysed to identify particularities of successfully transplanted organs. “We use molecular diagnostic techniques to develop a kind of ‘fingerprinting’,” Ploeg explains. “We have the outcome after transplantation, so we know how well the organs did, which profile matches what kind of function.”

Once such profiles have been established, they will help the team to assess the suitability of donated organs more accurately. “The next time we have such a profile,” Ploeg adds, “we can say that this kidney, for example, is very usable because we know from the trial that this profile corresponds to a happy kidney.”

The trialled techniques could filter through to standard practice very quickly. The ‘fingerprinting’ work will be a more lengthy process — and the trials and experiments are also highlighting new possibilities that the partners will not be able to pursue in the current project.

But ways to continue the collaboration will be found, says Ploeg, as the partners are determined to pursue these exciting leads together. The project will end, but the work will continue.

See also:

[CORDIS](#) [3]

Project:

Consortium on Organ Preservation in Europe

Project Acronym:

COPE

Project website:

<http://www.cope-eu.org> [2]

Contact:

[Contact](mailto:RTD-SUCCESS-STORIES@ec.europa.eu) [4]

Source URL: <https://ec.europa.eu/programmes/horizon2020/en/news/making-more-donated-organs-transplantable>

Links

[1] https://ec.europa.eu/programmes/horizon2020/en/system/files/newsroom/kidney_assist_2242_8495.jpg

[2] <http://www.cope-eu.org>

[3] http://cordis.europa.eu/project/rcn/106192_en.html

[4] <mailto:RTD-SUCCESS-STORIES@ec.europa.eu>