

Improved tissue donation in 2020 – even during coronavirus pandemic



Photo 1: Increase in tissue donation within the network of the German Society for Tissue Transplantation (DGFG) despite challenging conditions during the Corona pandemic. Source: DGFG

Hanover, 21 June 2021 - More people receive urgently needed transplants from tissue donation: For 2020, the German Society for Tissue Transplantation (DGFG) again reports an increase in activity with 2,816 tissue donations (2019: 2,764) and 6,364 tissue transplants provided to patients (2019: 5,585). Considering the challenges caused by the Corona pandemic, this is an unexpected result especially as the first lockdown in Germany during spring 2020 temporarily decreased the donation and transplantation of tissue.

"Corona presented us all with unfamiliar challenges. Seldom has the confrontation with death appeared so close and ordinary as it did in these times. That is why I feel absolute humility that, despite the global exceptional situation, so many people or their relatives were aware of tissue donation and agreed to donate in 2020," emphasises Martin Börgel, Managing Director of the DGFG. The high level of tissue donation maintained in 2020 was not to be expected due to the first lockdown in Germany during the spring. By the end of March, tissue donation and procurement rates had fallen by almost 25 per cent within the DGFG network. Canceled operations, lack of capacity in clinics and the precautionary exclusion of COVID-19 positive deceased potential donors continued to limit donation and transplantation. Nevertheless, thanks to a flexible and resilient network of donor hospitals, tissue banks and transplanting institutions and their collaborative efforts, the DGFG was able to supply patients with tissue even during the global public health crisis.

Donating tissue after death: rarely an issue in families

The increased awareness of health issues among the population in Germany as a result of the pandemic is also reflected in the increased donation consent rate of almost 41 percent. Nevertheless, the topic of tissue donation continues to receive too little attention in our society. As a result, thousands of patients are still waiting for a transplant.

In the event of a death, the network of DGFG coordinators are on hand to inform relatives about the possibility of tissue donation. Last year, the 50 DGFG coordinators conducted almost 7,500 next of kin interviews, with consent to tissue donation being obtained 3,046 times. If the deceased did not decide for or against tissue donation during their lifetime, their relatives are given the opportunity to consent to donation. In 2020, this was the case in more than two thirds of the conversations - an additional burden in time of mourning for the relatives.

The subject of death, and what should happen to one's body after they die, is still a taboo discussion in many families. The coordinators try to take away this anxiety from the relatives. Börgel pleads: "Don't be afraid of the topic of tissue donation at the dinner table and share your thoughts and opinions with your loved ones". The declaration of intent with regard to donation can be stated in writing in the organ and tissue donor card or in the living will.

More people receive urgently needed transplants from tissue donation

In contrast to organs, donated human tissues such as corneas, heart valves, blood vessels, amnion (placenta), as well as bones, cartilage, ligaments, and skin are not transferred directly to the recipient. They are first processed into transplants in tissue banks.

As part of the 2,816 tissue donations, the DGFG was able to obtain 6,081 tissue preparations from these. At around 90 per cent, the cornea was the most donated tissue in 2020. 5,401 corneas were retrieved for processing into potential corneal transplants in the eleven cornea banks within the DGFG's nationwide network. Corneal transplants help patients to achieve better vision or even prevent blindness. With 3,984 corneas deemed suitable and released for transplant, this means that almost half of the 9,000 corneal transplants performed annually in Germany are undertaken with corneas from the DGFG¹. Among these were 483 corneal lamellae (LaMEK), pre-prepared in the tissue bank for Descemet Membrane Endothelial Keratoplasty (DMEK). With this surgical technique, the patients' vision recovers even faster: Here, only the lamella is replaced i.e. the ultra-thin layer of the Descemet membrane and endothelial cells of the cornea.

52 living tissue donations were realised by the DGFG in 2020. Living tissue donation includes the donation of the placenta and its amniotic membrane in the context of a planned caesarean section. In ophthalmology, the membrane is used for the treatment of disorders of the corneal surface and can be placed on the diseased eye e.g., as an AmnioClip-plus, fixed in a ring system similar to a contact lens. The DGFG provided 100 such tissue preparations in 2020.

The regenerative and anti-inflammatory qualities of the amniotic membrane also make it valuable for the care of chronic wounds. Within the DGFG network, doctors are reporting initial successes in chronic wounds that have not healed for years.

¹ Ärzteblatt.de: Mehr als 9.000 Augenhornhauttransplantationen pro Jahr in Deutschland. 7 May.2021.

<https://www.aerzteblatt.de/nachrichten/124448/Mehr-als-9-000-Augenhornhauttransplantationen-pro-Jahr-in-Deutschland>

DGFG further expands its cardiovascular tissue donation programme

Last year, 393 people donated their hearts with the pulmonary and aortic valves included. In addition, the DGFG was able to acquire 267 blood vessels for processing into a transplantable graft. Most of these cardiovascular tissues are retrieved through organ donation. Since organ donation has been stagnating at a low level for years, the share of tissue donations from organ donors was also very low in 2020, at eleven percent of the total donation volume at the DGFG. Yet the need for heart valves and blood vessels is high: if an artificial heart valve or vascular prosthesis becomes inflamed, the transplantation of human donor tissue can save lives. Congenital heart defects also lead to premature wear of the heart valves and usually require tissue transplantation. The DGFG is therefore intensifying programmes for the donation of heart valves and blood vessels from people who have died of cardiac arrest. It is possible to remove cardiovascular tissues up to 36 hours after death. The DGFG was able to perform 38 such tissue donations after cardiovascular death in 2020 - an increase of seven donations compared to the previous year.

Tissue donation - a joint task in the DGFG network

Despite the constant growth of tissue donation and increasing transplant supply, there is still a lack of donor tissue in Germany, especially corneas, heart valves and blood vessels. Nonetheless, the DGFG believes that Germany's own demand for tissue can be fulfilled without having to resort to imports from abroad. "This can only be achieved if tissue donation continues to be understood as a joint task. The awareness of the population plays a major role here, but the infrastructure for sustainable tissue donation must also be in place," Börgel points out.

Not well-known: Anyone could donate tissue – in the case of the cornea even up to 72 hours after death. In addition, brain death diagnosis plays no role in tissue donation, in contrast to organ donation. 87 percent of tissue donors have died of cardiac arrest. Thus, the number of potential donors is very large: out of 986,000 people, the majority died of cardiovascular diseases in 2020² in Germany. Even many types of cancer or old age do not necessarily rule out tissue donation. Almost 40 percent of the post-mortem tissue donors were older than 75 years in 2020.

Non-profit DGFG faces growing demand for tissue transplants

The DGFG has been promoting tissue donation and transplantation in Germany since 1997. Based on the Tissue Act of 2007, all activities and processes of tissue donation are regulated. The trade ban applies to all tissue preparations.

The task of the DGFG includes the nationwide supply of high-quality transplants to patients. In the future, more and more people will need human donor tissue. As a consequence of demographic change, many diseases that require tissue transplantation as a last therapeutic option will continue to increase and lead to a growing demand. The DGFG arranges its transplants via a central allocation office with a nationwide waiting list. Every medical institution in Germany can request tissue from the DGFG.

As an independent, non-profit organisation, the DGFG is supported exclusively by public health care institutions: its shareholders are the University Hospital Carl Gustav Carus Dresden, the University Hospital of Leipzig, the Hanover Medical School, the Rostock University Medical Center, and the Dietrich-Bonhoeffer Clinic Neubrandenburg. The DGFG is unique in Germany in its organisational

² Statistisches Bundesamt. *Sterbefälle und Lebenserwartung*. Zugriff am 16 May 2021. https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Sterbefaelle-Lebenserwartung/_inhalt.html;jsessionid=48BBF7D5A6C49BE0A50E69DD7B10D45A.live742

structure, the voluntary nature of its support by network partners and its independence from private or commercial interests.

In 2020, the following hospitals have joined the nationwide network: Friedrich-Ebert Hospital Neumünster, Evangelical Hospital Oldenburg, Buchholz and Winsen Hospital, DIAKOVERE network Hanover, Bethesda Evangelical Hospital in Duisburg and the Robert-Bosch Hospital in Stuttgart.

Interview with experts:

- Martin Börgel, Managing Director DGFG
- Dr. med. Frank Polster, Regional Medical Director DGFG

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Photo 2: Corneal donation is possible up to 72 hours after cardiovascular death. With 5,401 donor corneas processed and 3,984 corneal transplants carried out, it represents the majority of tissue donations in the DGFG network. Source: DGFG



Photo 3: Amniotic membrane extracted from the maternal placenta can achieve true miracles in the treatment of chronic wounds. More than 2,000 of these transplants were provided by the DGFG in 2020. Besides dermatology, they were primarily used in ophthalmology. Source: DGFG



Photo 4: Like the application of a contact lens, the AmnioClip-plus, a ring covered with amniotic membrane, can be applied to superficial eye injuries. 100 clips benefited patients in the DGFG network in 2020. Source: DGFG