# Outcome After Organ Transplantation From Brain-dead Donors After a Cerebral Insult Following SARS-CoV-2 Vaccination Within the Eurotransplant Region

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Vaccine-induced thrombosis and thrombocytopenia (VITT) may occasionally occur following vaccination for severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) with adenovirus vaccines ChAdOx1 nCOV-19 (AstraZeneca) and Ad26.COV2·S (Janssen/J&J).[1] Rarely, VITT leading to sinus venosus thrombosis may result in fatal brain death, which leads to these subjects becoming potential organ donors. Currently, data on organs transplanted from deceased VITT donors are scarce, except for data from a recent study from the United Kingdom.[2] A retrospective analysis within the Eurotransplant International Foundation (ET)[3] region was performed to investigate the incidence and possible impact of VITT in the donor on recipient outcomes.

All donors reported to ET from March 1 to June 1, 2021, who received SARS-CoV-2 vaccination were individually checked for possible VITT-related cause of death (CoD). Deceased donors with possible VITT were identified on the basis of the CoD, type of vaccination, documentation of cerebral thrombosis with or without thrombocytopenia 4–30 d after exposure to the aforementioned vaccines,[4] and suspicion of vaccine-related complications reported by the donor coordinator. Transplant centers of the organ recipients were contacted for short-term follow-up outcomes. In this 3-mo period, 511 deceased donors were reported to ET. In 60 patients (11.7%), information was available on the administration of at least 1 dose of anti-SARS-CoV-2 vaccine: 33 (55%) BioNTech Pfizer, 3 (5%) Moderna, 2 (3.3%) Sputnik V, 1 (1.7%) SinoPharm, 5 (8.3%) unknown, and 16 (26.7%) were vaccinated with AstraZeneca (15) or Janssen (1) in the period preceding organ donation. Six donors with possible VITT-related CoD were identified. This was 2.1% (6/280) of all the donors reported with a similar CoD. All donors received adenovirus-based vaccines AstraZeneca (5) or Janssen (1) at a median of 14 d (9–25 d) before admission to the intensive care unit.

These 6 donors with a median age of 48 y (37–72 y), 50% female, provided 20 organs to 17 recipients (Table 1). After a median follow-up of 43 d (19–93 d), all recipients were alive and 19 organs (95%) were functioning well. Two recipients (11.8%) developed thrombosis-related complications; 1 kidney developed thrombotic microangiopathy but recovered completely. One split-liver recipient developed thrombotic material in different vessels and necrosis of liver cells, resulting in urgent retransplantation.

Organs from 6 deceased donors with a possible VITT were allocated through ET during a 3-mo period. As previous SARS-CoV-2 vaccination was not systematically reported for all these donors, this analysis could be an underestimation. Donor information did not include information concerning positivity for immunoglobulin G anti-platelet factor 4 antibodies. Although clinical relevance is still uncertain, this could make VITT diagnosis in donors more likely.[5] In addition, 4 deceased donors who received a BioNTech Pfizer vaccine with a reported history of thrombosis were excluded because of insufficient evidence to be VITT-related.

Overall, the outcome of our small analysis of transplanted organs from possible VITT-related donors does not seem to differ from "non-VITT donors." Nevertheless, caution is urged with these donors, and the acceptance of each organ remains to be assessed on an individual basis by the transplant team.

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**TABLE 1.**

**Characteristics of the 6 deceased donors and the 17 related transplant recipients**

| | Donor | | | | | | | Recipient | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cadaver type | Cause of death | Donor age (y) | Donor sex | Vaccination type | Days between last vaccination and ICU admission | Organs transplanted | Recipient age | Recipient sex | Days of follow-up after transplantation | Patient survival | Graft survival | Graft function |
| 1 | DBD | Intracranial bleeding | 59 | M | AstraZeneca | 25 | Liver | 62 | M | 32 | Y | Y | Good |
| | | | | | | | Kidney | | | | | Y | Good |
| | | | | | | | Kidney | 38 | M | 32 | Y | Y | Microangiopathy, recovered function |
| 2 | DBD | Intracranial bleeding | 49 | F | AstraZeneca | 10 | Lung | 50 | M | 39 | Y | Y | Good |
| | | | | | | | Lung | | | | | Y | Good |
| | | | | | | | Liver | 65 | F | 32 | Y | Y | Good |
| | | | | | | | Kidney | 58 | M | 31 | Y | Y | Good |
| | | | | | | | Kidney | 57 | M | 32 | Y | Y | Good |
| 3 | DBD | CVA | 43 | M | AstraZeneca | 15 | Heart | 60 | M | 56 | Y | Y | Good |
| | | | | | | | ERL liver | 41 | F | 56 | Y | N | Liver cell necrosis, retransplantation |
| | | | | | | | LLS liver | <1 | M | 93 | Y | Y | Good |
| | | | | | | | Kidney | 62 | M | 55 | Y | Y | Good |
| | | | | | | | Kidney | 48 | M | 57 | Y | Y | Good |
| 4 | DBD | Intracranial bleeding | 72 | M | AstraZeneca | 19 | Kidney | 77 | M | 19 | Y | Y | Good |
| 5 | DBD | Intracranial bleeding | 48 | F | AstraZeneca | 9 | Heart | 64 | F | 44 | Y | Y | Good |
| | | | | | | | Lung | 62 | F | 44 | Y | Y | Good |
| | | | | | | | Lung | | | | | Y | Good |
| | | | | | | | Liver | 51 | M | 44 | Y | Y | Good |
| | | | | | | | Kidney | 59 | M | 43 | Y | Y | Good |
| | | | | | | | Kidney | 71 | M | 43 | Y | Y | Good |
| 6 | DBD | CVA | 37 | F | Janssen | 12 | None | – | – | – | – | – | – |

CVA, cerebrovascular accident; DBD, donor after brain death; ERL, extended right lobe; ICU, intensive care unit; LLS, left lateral segment.

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