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The Availability of Livers for Transplant is Impacted by the Centralization of Major Trauma

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Introduction

The COVID-19 pandemic has significantly impacted healthcare systems, having an influence on every facet of medical treatment. Numerous studies found that the current epidemic significantly reduced organ donation and transplantation globally. This worldwide decline in transplant activity was particularly noticeable in hospitals where COVID-19 was more prevalent and there were fewer intensive care unit (ICU) beds available as a result. Additionally, as the rate of neurocritical patient admissions declined, so did the number of possible donors. An further factor in the decline in dead organ donation was the discarding of organs from potential donors whose SARS-CoV-2 status was either positive or unknown [1].

Description

It was clear that liver transplant teams had a very tough time deciding how to allocate a life-saving treatment during the epidemic. There is little research on liver transplantation during the COVID-19 epidemic and data that has been gathered has been difficult to interpret. The pandemic's effects have also been felt in liver procurement from trauma patients. The frequency of acute injuries dramatically decreased as a result of the preventative measures that were implemented, such as stay-at-home orders, travel limits and smart working. Due to hospital overcrowding, emergency procedures applied to several surgical specialties and included centralising patients to referral centres [2]. This centralization made it possible for referral centres to carry on with their regular operations, guaranteeing non-COVID patients the greatest possible access to medical treatment.

The current investigation is an offshoot of an ongoing multicentric retrospective study that is gathering information on trauma donors (TD) from international referral centres for solid organ donation. Preliminary findings from ASST GOM Niguarda, the project's coordination centre, are among the data presented. The next European Congress of Trauma and Emergency Surgery (ECTES-2022) will feature further, unpublished findings on the whole cohort. Through a thorough data assessment of consecutive trauma patients who underwent organ donation (OD) between January 2012 and January 2022, a retrospective, observational cohort research was carried out. According to the percentage of patients receiving DCS, clusters were compared. The silhouette approach was used to establish the ideal number of clusters. The Fisher-Freeman-Halton and Mann-Whitney-Wilcoxon tests were employed to examine the relationship between categorical variables [3].

The COVID-19 pandemic is expected to cause significant changes in trauma admissions beginning in the first quarter of 2020. A nationwide retrospective study by Berg et al. on American trauma centres revealed a tendency of concentration of trauma referrals to level I trauma centres in addition to an overall decrease in trauma prevalence and admission, primarily due to the shelter-in-place guidelines and the resulting reduction of motor vehicle accidents, blunt traumas and penetrating traumas. The COVID-19 epidemic has had a considerable impact on the Lombardy area. It was the first region in Europe to witness the disease's epidemic and Level 1 trauma facilities like ASST-GOM Niguarda Hospital were virtually always recommended for the treatment of trauma victims.

TBI is a leading cause of death despite the fact that centralization has improved the results for trauma patients. Trauma donors make up a useful resource for the acquisition of organs since they are often younger and healthier than non-trauma donors. Ackerman et al. reported that trauma patients produce more transplanted organs per donor when compared to non-trauma patients and with better organ characteristics when considering kidneys specifically; this finding does not seem to be valid also for liver transplantation from trauma donors, however, as literature is lacking in this field. We recently detailed a cohort of trauma donors following damage management technique from 2018 to 2021 in a monocentric cohort study [3].

This study has a number of limitations as a result of using electronic medical information and being retrospective in nature. The main limitations of this study are due to the small number of patients included in the cohort. Trauma care is a very dynamic process and how the events are interpreted relies on how accurately they are described and how much information is included in both pre-hospital and in-hospital patient records. We realise that our definition of functional response, which takes into account the first 30 days after transplant, is rather brief-term and was made since the data were available [5].

Conclusion

The COVID-19 epidemic has significantly boosted the number of liver trauma donors at our facility. Additionally, the high standard of care provided by first-class trauma hospitals may help to preserve the success of transplanted organs even in cases of organ damage by reducing the loss of donor-eligible organs. The pandemic period highlighted the fact that centralising significant trauma enhances the availability of organs for transplantation in a single facility; this element has to be considered when formulating future allocation plans at the regional and national levels.

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