

# COVID-19 in perspective

## Introduction

The world is in the midst of a COVID-19 global pandemic and public health crisis which has resulted in considerable morbidity and mortality and placed significant stress on healthcare resources. The need to dedicate major economic, infrastructural and medical resources to critically ill COVID-19 patients has resulted in a redistribution of the activities of medical disciplines not primarily involved in the management of COVID-19 patients. Given the varying nature of international healthcare systems, conditions differ significantly by region and locality and between state and private practice. Critical decisions concerning the deployment of resources and the management of elective surgical procedures are based on institutional policies and recommendations from local, regional and national authorities, and specialist societies and must consider the availability of finite and essential resources.

The key principles of management are to maintain essential care while minimising risks of COVID-19 to patients and staff and maintaining overall healthcare resources. As the COVID-19 pandemic evolves, surgical procedures will be increased or reduced based on the current level of restriction to healthcare services. Although some consistency across the country is desirable, provincial and regional considerations will of necessity influence how these recommendations are implemented. Healthcare professionals have a responsibility to maximise the use of these resources to provide the best possible care for all patients. Although elective surgical procedures are being postponed and cancelled in many parts of the world during the COVID-19 pandemic, acute procedures will continue and will need to be appropriately managed.

There is currently a paucity of information to delineate the principles of ethics for the management of elective and

emergent surgery lists during the COVID-19 pandemic. Most routine problems are appropriately managed within the context of surgical practice at individual level and/or in the context of a multidisciplinary team; health professionals may also consult their peers for advice or look to existing policies on ethical issues, and follow their professional lead body.

Boundaries of responsibility in relation to who has access to new technological treatments, and who decides when to withhold or withdraw treatment, for example, have challenged long-held paternalistic views about how surgery should be practised. Decision-making gradually ceased to be the responsibility of one individual, the specialist in charge, and has become a shared responsibility, involving patients, their families, and members of the multidisciplinary team. In addition, where complex legal and ethics decisions have to be made, the role played by specially formed ethics committees has received recognition.

All surgical disciplines are involved in the pandemic and most areas are affected. This collection of opinion pieces highlights and addresses COVID-19 relevant issues pertaining to ethical considerations, enhanced recovery after surgery, ENT, breast reconstruction and transplantation. These views are those of the authors and not position statements of national societies or governmental departments. As such we hope they will encourage collegial debate on the subject as we move through the phases of the pandemic.

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## Ethics and surgery during the COVID-19 pandemic: principles are no different

Ethics can perhaps falsely give the appearance of being a complex subject, but in clinical terms it is really about forming a judgment based on the available facts of an individual case and assessing the relative risks, burdens and benefits of different courses of action. This task is done by making reference to appropriate ethical and legal frameworks.<sup>1</sup> While additional training may be needed to gain familiarity with these frameworks, it is not necessary for practicing healthcare professionals to be expert in these fields.<sup>1</sup> Surgeons need to be aware of ethical and legal issues that apply to a case as they execute the process of consultation and decision making.

The core principles of surgical ethics still apply during all phases of the COVID-19 pandemic:<sup>2</sup> respect, "the harm principle", fairness, consistency, least coercive and restrictive

means, working together, reciprocity, proportionality, preservation of resources, flexibility, and procedural justice.

Their application related to principles is shown in brackets: maintaining essential services to all patients (optimal preservation of resources), diminishing adverse surgical outcomes for patients ("the harm principle"), ensuring decisions regarding prioritisation of surgery are made in a consistent manner (procedural justice, accountability, reasonableness), ensuring that decisions are communicated in a transparent and sensitive manner particularly in regard to the elderly (respect and transparency), appropriate surgical use of the overall hospital system capacity (working together, proportionality). Minimising the risk to healthcare workers (reciprocity, care provider safety, and sustainability) and, in particular for COVID-19, maximising preservation of personal protective equipment (preservation of resources)

# Impact of COVID-19 pandemic on transplantation

End-stage organ failure is estimated to affect more than six million people worldwide.<sup>1</sup> More than one and a half million people live with a transplanted organ worldwide.<sup>1</sup> In 2018, transplant systems across the world enabled around 150 000 patients to benefit from a kidney, heart, lung, liver, or other solid organs.<sup>1</sup> In South Africa, over 500 patients receive a transplant every year, but 4 300 patients remain on waiting lists.<sup>2</sup> Only 0.2% of the population are registered organ donors and there are high death rates while on the waiting list for transplantation.<sup>2</sup> This vast discrepancy between need and provision is compounded by the fact that elective transplant programs were paused at the onset of the COVID-19 pandemic. Healthcare providers, institutions and patients are concerned about the potential effect the pandemic will have on organ donation and transplantation.<sup>3</sup> The evolving epidemic has led to reduced activities in organ donation and transplantation across South Africa. Similarly, transplantation programmes have been suspended in other countries because of scarce resources (especially ICU beds) and concerns regarding immunosuppressive induction regimens.<sup>4</sup> In the USA, 71.8% of surveyed physicians reported full suspension of live donation kidney transplant programmes, and 80.2% of deceased donor kidney transplant programmes were operating with restrictions.<sup>4</sup>

Transplant programs, like other surgical services, face a scarcity of critical care resources, healthcare personnel and the challenge of preventing in and out of hospital post-transplant COVID-19 infection.<sup>5</sup> The already-complex risk and benefit assessment for each donor and transplant recipient is clouded by a paucity of data on the effects of contracting COVID-19 during the transplantation event or during follow-up. Transplant patients are among the highest risk groups for developing severe COVID-19 infection, due to comorbidities and immune suppression.<sup>3,6</sup>

In our view, the following considerations should be born in mind as the transplant community adapts to the current situation and to the increased transplantation activity as lockdown eases.

Firstly, existing transplant patients should be cared for to the best of our ability. It is encouraging that reports suggest that transplant patients may not be at higher risk of contracting COVID-19 if proper social distancing and preventive measures are employed.<sup>6</sup> A recent report of 87 heart transplant recipients in Wuhan, China, noted that social distancing coupled with other preventive measures led to a COVID-19 infection rate no higher than that of the general population.<sup>6,7</sup> Isolation and social distancing, however, may be problematic in certain low resourced, densely populated communities in South Africa.

Distance from a transplant centre has been associated with increased mortality, and prolonged lockdown will further

hinder access to care, and amplify existing inequalities in the transplantation process.<sup>8</sup> The increasing presence of COVID-19 in communities requires sustained efforts from transplant programmes to encourage ongoing post-transplant protective self-isolation. Transplant telehealth programmes may reduce costs, shorten time to initial evaluation and waitlist placement, improve quality of life, and decrease readmissions following transplantation.<sup>8</sup> As with any change in care delivery, virtual telemedicine services must not create or promote disparities for the most vulnerable populations.<sup>8</sup>

Secondly, there is limited information on if or how immunosuppression should be altered if the recipient becomes infected with COVID.<sup>3,6,9-11</sup> In the event of COVID-19, most clinicians would continue calcineurin inhibitors (CNI) and glucocorticoids but stop the antiproliferative drugs, while balancing the risk of rejection. However, in newly transplanted patients, or a graft rejection, this may not be possible. In-vitro studies show non-immunosuppressive derivatives of cyclosporine A inhibits the N-protein of human coronavirus 229E, preventing viral replication.<sup>9</sup> Consequently, cyclosporin may be the preferred CNI during the COVID-19 pandemic. No data are available on whether tacrolimus derivatives or metabolites exhibit similar in-vitro activity. However, the lymphopenia as well as T-lymphocyte dysfunction caused by CNIs may potentially enable viral invasion and proliferation. Similarly, due to their lymphocyte depletion effect, avoidance of anti-thymoglobulin or alemtuzumab induction regimens is prudent. Many patients with severe COVID-19 develop lymphopenia, which is a poor prognostic factor. Should transplant recipients develop severe COVID-19 requiring mechanical ventilation, CNIs and antiproliferative drugs should be immediately withdrawn and glucocorticoid doses should be increased.<sup>10</sup>

Significant efforts have been made by the health systems, industry and government, to strengthen the overall ICU capacity at national level to cope with severely ill COVID-19 patients.<sup>5</sup> Despite this, access to critical care resources for non-COVID-19 cases remains based on local policy and resources. Transplantation and other disciplines may need to make the argument for access to the limited number of ICU beds (approximately 7 195 across the country) particularly for non-renal transplant patients who cannot be sustained on options such as dialysis.<sup>5</sup> The lack of ICU resources will exacerbate the inability to accommodate brain dead potential donors, which will further reduce the donor pool. Assessment of potential donors would require a rapid and accurate test for the presence of COVID-19, with low false negatives. It is unclear with the varying waiting times for results in the state sector how this could be facilitated. Other detrimental factors are the logistic challenges for

donor organ procurement and transplant surgery, due to containment measures, travel restrictions, and transplant healthcare professionals being engaged with the treatment of COVID-19 patients.

During the COVID-19 outbreak, transplant programmes should cautiously weigh up the value, sensitivity and costs of additional screening tests, the potential risk of postoperative complications and the unpredictability of outcomes, against the potential benefits of optimal organ utilisation, especially for high priority liver and heart recipients. At this time, supportive care is all we have to combat this virus in solid organ transplant recipients.<sup>3,6,10,11</sup> Every effort should be undertaken to ensure that all transplant candidates and recipients may safely access healthcare systems and their resources in the current pandemic scenario. The pandemic will have ongoing effects in the long term such as increasing waiting lists, resulting in increased mortality and worse preoperative conditions.<sup>12</sup> It is therefore of great importance to identify the right time to re-open and re-establish transplant programmes. The considerations discussed in this article remain to be validated in future studies.

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