Surgery during COVID-19 crisis conditions: can we protect our ethical integrity against the odds?

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Received 14 May 2020
Accepted 22 May 2020
Published Online First 12 June 2020

ABSTRACT

COVID-19 is reducing the ability to perform surgical procedures worldwide, giving rise to a multitude of ethical, practical and medical dilemmas. Adapting to crisis conditions requires a rethink of traditional best practices in surgical management, delving into an area of unknown risk profiles. Key challenging areas include cancelling elective operations, modifying procedures to adapt local services and updating the consenting process. We aim to provide an ethical rationale to support change in practice and guide future decision-making. Using the four principles approach as a structure, Medline was searched for existing ethical frameworks aimed at resolving conflicting moral duties. Where insufficient data were available, best guidance was sought from educational institutions: National Health Service England and The Royal College of Surgeons. Multiple papers presenting high-quality, reasoned, ethical theory and practice guidance were collected. Using this as a basis to assess current practice, multiple requirements were generated to ensure preservation of ethical integrity when making management decisions. Careful consideration of ethical principles must guide production of local guidance ensuring consistent patient selection thus preserving equality as well as quality of clinical services. A critical issue is balancing the benefit of surgery against the unknown risk of developing COVID-19 and its associated complications. As such, the need for surgery must be sufficiently pressing to proceed with conventional or non-conventional operative management; otherwise, delaying intervention is justified. For delayed operations, it is our duty to quantify the long-term impact on patients' outcome within the constraints of pandemic management and its long-term outlook.

INTRODUCTION

As a surgical department operating under COVID-19 (severe acute respiratory syndrome coronavirus 2) crisis conditions, a multitude of ethical, practical and medical dilemmas are encountered. Instruction to halt all elective surgical work has received high uptake across centres nationwide; however, urgent surgical cases are ongoing. Conventional thinking of gold standard management must be updated to consider possible consequences of operating in this high-risk environment. This directly impacts what procedure is performed, when and where it is carried out. Each change presents ethical dilemmas that requires careful considerations.

WHAT PROCEDURE SHOULD BE PERFORMED?

Working in cardiac surgery within an active tertiary care centre, the impact of COVID-19 on our working pattern has been significant. The caseload has now reduced from an average of 15 cases/week to 3–5 cases/week after 30 March 2020. Although this is primarily due to the aforementioned cancellation of elective work, procurement of theatres as intensive treatment unit (ITU) bed spaces and modification of the required interventions have also reduced caseload. With the resultant limitation to operative facilities, careful case selection is imperative to minimise harm: only the most urgent patients with no feasible alternatives can be listed.

The Royal College of Surgeons published guidelines on good practice for surgical teams during COVID-19 on 31 March.[1] The recommended changes are in keeping with those outlined above; however, advice on operation selection when more than one procedure is available is lacking. National Health Service (NHS) England also published specific guidelines for cardiothoracic surgery which does not address these issues clearly.[2] Emergency patients with multivessel coronary disease are receiving percutaneous coronary intervention (PCI) rather than the gold standard coronary artery bypass grafting (CABG). The short-term benefits are clear: with reduced recovery time and systemic insult, the risks of COVID-19 exposure and associated complications will be significantly reduced. One must also ask; how does this affect long-term outcomes? Does the short-term benefit outweigh the long-term risk? Extrapolating the situation of PCI versus CABG in multivessel coronary disease, the 5-year mortality has been shown to be 14.6% versus 9.2%, respectively; equating to a 58.7% increased risk of death at 5 years with PCI.[3] Although there is some conflicting evidence, it is undoubtable that, for some patients, CABG provides better long-term outcomes.[4] Similar situations exist across other surgical specialities.[5] With consideration of the above, is delivering the gold standard surgery safely possible through alternative pathways?

HOW ELSE COULD WE MINIMISE COVID-19 RISK TO SURGICAL PATIENTS?

Other opportunities to deliver the gold standard surgery safely are changing the location or time of procedures. Having a 'clean' hospital that performs operations would provide a safe space, theoretically eliminating COVID-19 risk. To implement this, both private hospitals and designated surgical units have been suggested. Given the persistent viral spread despite nationwide lockdown, and widespread personal protective equipment shortages, keeping any hospital clean for an extended period of time would be very demanding, if not impossible.

To cite: Macleod J, Mezher S, Hasan R. *J Med Ethics* 2020;**46**:505–507.

To stratify patients who can be delayed until infective risk declines, scoring tools such as the HEART[6] and EUROSCORE 2 (The European System for Cardiac Operative Risk Evaluation 2) tools[7] can be used, but clinical judgement plays an essential role under such unprecedented times. Indeed, in a high-risk population, triaging and potential delay of patients' management adds to the unpredictably of the long-term consequences of such decisions.

Coupling the unclear risk profile of COVID-19 with a lack of alternatives to provide the gold standard surgery, what is the ethical justification for performing a substitute procedure on this cohort of patients?

HOW CAN WE ETHICALLY PROVIDE THE TRADITIONAL GOLD STANDARD, OR ALTERNATIVE, OPERATION TO PATIENTS DURING THE COVID-19 CRISIS?

In times of dissonance with moral norms, it is essential to use an ethical framework to guide decision-making. This allows a structured method of resolving conflicting moral duties. One such framework has formed the basis of healthcare ethics: initially proposed by Beauchamp and Childress in 1979, the four principles of patient care are beneficence, non-maleficence, respect for autonomy and justice.[8]

BENEFICENCE AND NON-MALEFICENCE

WD Ross established the concept of *prima facie* duties, acts that are morally obligatory unless overridden by another.[9] Beneficence is one such duty defined as an act done to benefit.[8] It is often paired with non-maleficence a principal engrained within medicine as *primum non nocere*—physician do no harm, a phrase with unclear origins.[10] As all interventions confer risk, it is important to distinguish the difference between the weighed risks of positive intervention within beneficence and physically causing harm. The theory of utilitarianism holds that whatever maximises population benefit is the most ethical decision.[11] It is a form of consequentialism; in principle, one can perform a minor harmful process in order to create a major beneficial process. This raises questions in regards to how we determine 'an optimal outcome' as discussed in the Justice section.

Gold standard operations are those with the best evidence-based outcomes and lowest risk profiles.[12] Historic research does not reflect COVID-19-related mortality or the current limitations within the NHS, as such operative risk will be considerably higher than previous. Less invasive procedures, such as PCI, have smaller evidence bases than surgery[3]; hence, they have not been first-line treatment options historically. Their inferiority to the gold standard should be weighed up against the possible protection from COVID-19-associated risk. Does the current climate mean we can change the gold standard regardless of the challenge around quantifying risk?[13] Although the gold standard will remain unknown we can, at the very least, meet the obligations of beneficence and non-maleficence, without clear COVID-19 data, through only performing lifesaving operations.

Multiple operations across the UK are being delayed to open space in hospitals for possible patients with COVID-19. This governmental decision has determined that the viral risk to the population is greater than the risk of cancelling all routine procedures. As described above, a maleficent act can be accepted if a largely beneficent act is the result; thus, the *prima facie* duty can be overruled. The net morbidity and mortality from delaying all NHS procedures are uncalculatable, resultantly a utilitarian argument becomes impossible. Locally, it is necessary to make projected mortality-based decisions in relation to the safest way to delay procedures.

RESPECT FOR AUTONOMY

Kantian ethics traditionally described respecting autonomy through individual importance: each person is an end, not a means, in themselves, holding their own categorical imperative and should be treated accordingly.[14] Beauchamp and Childress expanded on this by presenting two prerequisites for autonomy: (1) liberty (freedom from influencing factors) and (2) agency (capacity for intentional action).[8] These influential pieces have shaped our modern view of respecting autonomy, whereby an individual is deemed to have capacity unless proven otherwise. The Mental Capacity Act 2019 enforces this principle and describes the ability to understand, weigh up, retain and communicate information as the fundamental requirements for decision-making.[15]

To ensure compliance with set legal standards when making a decision regarding surgery, written consent is obtained. The validity of this consent relies on the accuracy of information provided to the patient. Operating in current crisis conditions, previously modelled mortality rates are not accurate as they do not account for the increased risk from contracting COVID-19. Update to quoted mortality statistics must be increased in line with local experience to the best of provider ability, to ensure informed consent.

With regards to the gold standard procedure, one could argue that in the midst of unclear risk profiles patient choice should take precedence. Taking this 'fully autonomous' approach as opposed to a more guided approach to management decisions yields some negative consequences. Patients lacking confidence, who will be significant in number during crisis conditions, feel abandoned when presented with management options without clinician recommendation.[16] In addition, Davies and Elwyn[16] showed that these patients suffer lasting feelings of guilt should negative consequences arise as a result. As such, it should be remembered that patient choice is a right and not a mandatory requirement.

Another issue with patient autonomy arises when exploring patient perceptions. Take the example of the man who refuses to undergo urgent surgery due to the fear of contracting COVID-19. There is no organic reason for him to lack capacity and his decision could be respected. It is for this reason that Walker argued in 2008 that current frameworks do not sufficiently account for internal control factors.[17] In following, surgeons must explore patient perceptions regarding COVID-19 to facilitate a fully informed decision in the current era.

JUSTICE

The alignment of institutional policy with principles of justice is of fundamental importance to maintain citizen, employee and governmental trust.[18] These requirements at least persist, if not amplify, through crisis conditions with scarce resources. Indeed, no situation exists where all alternative choices are equally unjust.[19] It follows that when the question 'who should we operate on during this crisis when capacity has been significantly reduced?' is asked, an optimal answer may be derived. Three principles are primarily used to resolve microallocation problems such as this; these are needs, maximising and egalitarian principles.[20]

According to needs principles, patients who are most acutely unwell should be operated on regardless of potential for

recovery. Maximising principles aim to increase population health by intervening on those who can benefit the most. Egalitarian principles advise that all people should be given an equal opportunity to a long life of health, favouring younger patients. Although clinicians are generally stated to favour a needs principle for patient selection,[20] surgeons ensure sufficient benefit from operating to justify the incurred risk. This demonstrates a combination of needs and maximising principles. The current practice of delaying elective surgery and operating on emergency cases is in keeping with this rationing principle. Despite COVID-19's primary tendency to envelop ITU and ward areas, acute surgical cases may still overload departmental capacity necessitating complex decision-making. Clinicians in these situations undoubtedly judge each case individually, however, must carefully act with a consistent balance of needs, maximising and egalitarian principles. A simple testing method is presented for this below.

The standard, proposed by Beauchamp and Childress, to judge systemic alignment with just principles is whether two cases of similar presentation are treated differently.[8] Achieving this in a realm of guideline-deficient practice requires active planning: a lack of evidence to guide decisions exacerbates the existing natural variation in management[21] between clinicians. Indeed, local protocols must be devised early to reduce these otherwise inevitable management discrepancies, maintaining essential equality of opportunity for patients. It is only through such grounded actions that we may act justly and therefore withstand any possible future scrutiny.

CONCLUSION

The current COVID-19 crisis has placed a new type of demand on the healthcare system in the UK. The pandemic results in unknown variables being pushed to the forefront of clinical decision-making, raising a plethora of ethical issues.

As such, to continue providing the gold standard surgical procedures ethically, certain conditions must be met. First, we can continue operating as long as there is clear net benefit to the patients, that is, emergency cases. For those patients requiring acute treatment, an alternative to the conventional gold standard can be performed if its known inferiority is outweighed by the reduced risk of COVID-19-related complications. Given these options structured local protocols must be devised to reduce variability and therefore preserve patient equality of opportunity.

The decision to operate must involve the patient; capacity and perceptions around COVID-19 need to be explored. In addition, for valid consent to be obtained, operative risk discussion must include COVID-19-related mortality. If withholding the decision to operate, we should consider the harm caused: detailed effects of this harm need to be quantified to guide future disaster management.

Altogether, whether the conscientious clinician opts for conventional, non-conventional or non-operative management during this crisis, retaining the patient's best interest at the heart of our practice will preserve our professional integrity.

Contributors JM and SM contributed equally to this paper. RH provided a supervisory role in editing and finalising the manuscript. They have extensive expertise in arranging cardiac surgery, specifically with patient interaction forming a crucial portion of daily workload. It was initially drafted after COVID-19 drastically cut down our departments operating capacity raising a variety of ethical issues to be addressed. The lack of clear guidance lead to discussion in regards to how we treat urgent cardiac surgery patients to the best of our department's ability. JM and SM wrote, edited and reviewed the manuscript and approved the final draft. Sources were found via analysing key ethical texts, found via Medline. JM is the guarantor of the article.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; internally peer reviewed.

Data availability statement There are no data in this work.

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