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Surrogacy and ethics in women with cancer

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A B S T R A C T

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Women diagnosed with gynaecological cancer may face unwanted loss of fertility as well as all the other life-changing issues with which cancer and its treatments are associated. The decision to harvest and store gametes has to be made before commencement of treatment, and advances in these techniques have made this successful. Fertility sparing therefore must be discussed and offered at an early stage post diagnosis. Surrogacy is currently an evidence-based method of assisted reproduction, with mainly desirable outcomes for the commissioning mother, surrogate and child, without impacting on the cancer treatment and long-term survival.

Surrogacy is therefore ethical as long as the autonomous rights of both the commissioning mother and gestational carrier are equally observed, they both have equal legal protection and due attention is paid to the short- and long-term welfare of any resulting offspring.

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Introduction

Women of reproductive age with gynaecological cancer are at high risk of infertility due to both cancer and its treatment. Despite ever more ingenious advances in assisted conception, there remain women who are unable to carry a pregnancy, and by implanting an embryo into the uterus of a healthy woman, a patient with cancer can have a child to whom she is genetically connected. This is known as gestational surrogacy.

Given the increased rates of survival after a variety of cancers, the issue of surrogacy and ethics surrounding this as an option needs to be discussed from a number of viewpoints and indeed even in

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the situation where the cancer is in remission and the woman wishes to become pregnant by whatever means available at her disposal.

The need for surrogacy is dictated by a number of preceding events that impact fertility, including the use of cytotoxic therapy with deleterious effects on ovarian physiology, particularly after alkylating agents, and the use of irradiation or hysterectomy particularly for cervical and uterine cancers.

Favourable, evidence-based clinical outcomes for gestational surrogacy have been established; therefore, this has currently become an option offered by many in vitro fertilisation (IVF) clinics.

The act of implanting a fertilised embryo into the uterus of a healthy woman to carry the pregnancy is, however, an option that utilises the body of another living person and, quite appropriately, has stimulated much sociological, medical, ethical and legal debate.

This chapter aims to briefly discuss the basic concepts of medical ethics to assess some of the practical ethical issues surrounding the use of gestational surrogacy in general and to address these issues specifically in relationship to its use for women with cancer.

What are medical ethics and why do we need them?

Modern medical ethics is the study of moral values, as they apply to medicine [1]. The concept of having a moral framework applied to medicine goes back as far as the days of Hippocrates in the 5th century BC, thus establishing medicine as a profession, not merely a job of work. It is a questioning and critically reflective discipline [2] that forms a workable basis for applying moral values to the scientific practice of medicine.

They consist of four main ethical principles originally stated as follows:

- a) Respect for autonomy, which is a recognition of an individual's liberty and capacity for free choice
- b) Beneficence, to do good
- c) Non-maleficence, which means to do no harm
- d) Justice, which is more relevant to society and encourages fair treatment and distribution of resources [3].

When, however, there is a conflict between two of these principles, the doctor faces an ethical dilemma, a situation that is increasingly likely in the current climate of ever more complex clinical situations [4]. The concept of applying seemingly remote ethical principles to everyday complex clinical scenarios may at first seem difficult, but there are valuable examples of centres where formal discussion groups such as ethics 'tumour boards' are used to help clinicians use ethical principles to help them make difficult clinical decisions without compromising patient autonomy. A reproductive, multidisciplinary clinical ethics committee provides space for discussion and clinical decision making, whilst diminishing the risk that these decisions are too subjective and swayed by individuals' personal beliefs, which may be in conflict with those of the patient [5].

Personal autonomy

This can be defined as a personal rule of the self by making choices, based on adequate information and free from unwanted influence. A fundamental factor in enabling personal autonomy in the field of bioethics is the concept of informed choice and consent.

Informed consent

This is carried out daily in medical practice and underpins ethical clinical care. To exercise one's autonomy, any patient needs clear, evidence-based information to make decisions about their treatment. It is one of the essential duties of care of the clinician to deliver this information in an accessible and appropriate manner. Consent taking is a process, not an event, and, of importance, may need to be revisited at different points in a treatment pathway.

Medical paternalism

On graduating in medicine, doctors who take the Hippocratic oath promise that they will do no harm to patients under their care. Over the centuries, the definition as to what constitutes harm has been solely dictated by the doctor despite occasionally being in conflict with the wishes of the patient, the situation of medical paternalism. Even though in such cases the doctor has felt that the decision was in the best interest of the patient, this approach has currently been recognised as often being in direct conflict with one of the most important concepts in ethics, that of the autonomy of the individual.

To ensure ethical practice, the clinician has to offer, where possible, evidence-based solutions to clinical problems, and if no such evidence exists, then information has to be given to the patient that such evidence is lacking. It is thus the clinician's duty of care to the patient to ensure their personal autonomy, by giving them information that is both accurate and appropriate so that informed choices about treatment can be made.

Medical paternalism occurs when the clinician tries to sway or even override the wishes of the patient in a different direction from the one they have chosen, even if deemed to be in the patient's best interests. Preservation of the personal autonomy of the patient, although sometimes difficult, is so essential to the ethical practice of modern medicine that in extreme cases such as refusal of lifesaving treatment, the only way to overturn any such seemingly harmful decisions on the patient's part is through a court of law.

The ethics of surrogacy as a method of assisted conception

For a clinical treatment to be ethical, it must be shown to be safe, effective and acceptable. In the scenario of cancer, these criteria must apply to the patient with cancer herself, to the baby and, equally, to the surrogate mother.

Current research comparing perinatal outcomes of surrogate pregnancies with pregnancies after autologous IVF looks favourable. A review [6] of outcomes of singleton live births using the techniques of autologous fresh IVF and intracytoplasmic sperm injection, autologous frozen embryo transfers and surrogacy showed that there was no difference in the risk of pre-term birth or lower birth rate between the groups and that birth weight was significantly higher in the gestational surrogacy group.

A retrospective cohort study review of more than a million pregnancies concluded that, per embryo transfer, gestational carriers had a higher pregnancy and live birth rate than non-surrogate carriers across all IVF methodologies [7]. Singleton pregnancy after frozen embryo transfer has also been shown to have the best perinatal outcome compared with that after IVF/intracytoplasmic sperm injection (ICSI) [8].

One of the reasons both clinicians and women have hesitated to pursue any fertility preservation is that the process of egg harvesting can delay the commencement of cancer treatment. A group in the US, however, has shown reassuringly that, although the time to cancer treatment was two weeks longer in the group who opted for fertility preservation, there was no difference in cancer recurrence or mortality [9]. Furthermore, in women with breast cancer who were referred expeditiously, fertility preservation with random-start ovarian stimulation was not associated with delayed cancer treatment in the neoadjuvant setting [10].

Although this chapter deals mainly with full gestational surrogacy, where the commissioning couple's gametes are fertilised in vitro and then transferred to the surrogate mother by direct embryo transfer, it is reassuring to note that there seem to be no negative differences in obstetric outcomes for gestational carriers versus traditional surrogacy, where the surrogate's own eggs are used [11].

The ethics of using a surrogate

One of the major ethical questions in relation to gestational surrogacy is the role of the surrogate herself. There are two main opposing ethical arguments. The first is that it is morally wrong for a woman's body to be utilised as a vessel for carrying a child and has been likened to prostitution whereby a person becomes a means to an end rather than a person in herself [12]. More modern interpretations of the use of one's body for means other than manual labour are termed as 'bio-labour' [13].

Surrogacy of this sort implies the woman herself becomes a ‘patient-worker’, similar in some ways to a patient taking part in a clinical research trial. This means that as well as being protected by legal agreements as a worker, the surrogate is also a patient and is entitled to full medical care during the course of her work commitment [14].

In contrast, if the surrogate herself has been able to act as an autonomous human being, in choosing to undertake this role without coercion for altruistic or financial reasons, and with freely given informed consent, then the act of being a surrogate can be argued to be ethical.

One problematic area, however, is that if a woman is in a poor financial situation, she may feel that this is the only way to take herself and her family out of poverty. In some poorer countries, therefore, instead of the act of surrogacy being a positive, enabling an act in the woman's life, the liberal or even total lack of regulation of commercial surrogacy can lead to exploitation and commodification of the female body [15]. On the other hand, it can be argued that the willingness to act as a surrogate is generated by a variety of factors including emotional and altruistic and that financial factors should be equally considered and not automatically frowned upon because if autonomy is protected then this validates the surrogate's decision.

As it is known, multiple embryo transfers carry greater health risks to both gestational mother and child, and it is the clinician performing the procedure who may have to balance the interests of the safety of both and adherence to guidelines, with the desperation of the commissioning mother to have a child and the determination of the surrogate to fulfil her role, whether altruistic or commercial.

Sadly, there are many reports of the commercial aspects of IVF and surrogacy overshadowing its ethical practice, despite regulation. In the USA, for example, guidelines on single or multiple embryo transfer were only followed in fewer than 42% of cases [16], and even in Canada, where it is illegal to pay a surrogate, the commercial drive to assist childless couples was such that guideline adherence was only 48% [17].

As long-term infertility is a recognised and highly distressing sequel to gynaecological cancer, some centres have developed decision-making tools to help both clinicians and patients make timely decisions about their care [18]. In the case of the woman with gynaecological cancer, as long as oocytes can be harvested safely from her if needed, surrogacy should be a beneficial and non-malevolent form of reproduction.

Legal issues

The legal rights of the commissioning parent

The law on surrogacy differs from one country to another. Religious attitudes shape legislation, but there are differences within different branches of the same religion [19]. Laws can also differ from one state to another within a country, such as in the USA [20], Australia and Canada. People who are determined to have a child presently are inclined to search globally for opportunities and to travel to commission surrogates, thus overriding what they see as very restrictive domestic policies. Currently, it seems ironic that the ethical stance taken by prosperous democratic countries, which has led to legislation denying, or severely restricting commercial surrogacy, leads to women travelling overseas and finding commercial surrogates from underprivileged communities. Therefore, the developed countries whose ethical guidelines are in place to safeguard their own communities, often at the expense of individual autonomy, are effectively hypocritical in that the result is to encourage transnational surrogacy in low- and middle-income countries where the possibility of exploitation may be higher.

There are also inconsistencies in the laws recognising parenthood of the child. Some jurisdictions, such as Greece, protect the rights of the commissioning parents in a pre-conception agreement. Other countries legally assume the birth mother to be the parent, and the child has to be formally adopted. There have been cases where either the birth mother has not wanted to give up the child or that the child born has been rejected by the commissioning parent sometimes because of congenital anomaly or because of a change in the commissioning mother's circumstance.

Furthermore, if the commissioning mother has a history of cancer, she may be physically unable to take care of the child or, tragically, she may die before the child is born; therefore, unless she has firm legal arrangements in place, the parentage of the resultant offspring could become problematic.

There are still bitter divisions on the issue of surrogacy [21], and global inconsistencies are rife. Some countries, however, are responding to a changing society and are examining more equitable legal ways of assisting people, both men and women, to become parents. In Australia, currently, commercial surrogacy is illegal, and only altruistic surrogacy is permitted where the surrogate receives minimal expenses for her trouble and is often a relative or friend. The attitudes of the Australian public, however, are currently more firmly behind a change in the law to legalise commercial surrogacy, given the availability of counselling resources and legal structures to avoid exploitation [22].

In Iceland, all surrogate motherhood has been illegal since 1996; however, despite this, some couples travel to the USA and India to engage a surrogate despite the unclear legal status of the child when they return home. To try to address some of the moral and legal issues thrown up, the Iceland legislative assembly has put forward a proposal to change the law to at least allow altruistic surrogacy [23].

In Canada, the law prohibits commercial surrogacy but will, however, confer citizenship on surrogate babies born abroad to Canadian citizens, thus unintentionally encouraging transnational commercial surrogacy [24].

In Australia, current law prohibits commercial surrogacy in all states, and three states also ban the commissioning of compensated transnational surrogacy, but this does not appear to be a deterrent [25]. There are many voices pushing for a liberalisation of the Australian law to prevent unethical exploitation of surrogates in the developing world by women from wealthy countries [26].

Arguably, the countries with seemingly ethical laws permitting altruistic surrogacy only are responsible for encouraging reproductive tourism and possible exploitation of women abroad.

The legal rights of the surrogate

Most transnational surrogacies are carried out by individuals in more affluent countries travelling to poorer countries to find surrogates, especially in countries where the law on surrogacy, if it exists, is unclear. Southeast Asia is a popular destination for reproductive travel. In one of the most popular places for such health 'tourism', India, the current law clearly favours the commissioning parent, and the Indian woman herself has little protection. In response to political pressure from human rights groups, however, The Surrogacy (Regulation) Bill was introduced into the Indian parliament in 2016, which seeks to regulate the currently unregulated surrogacy business. This was supposed to be finally decided in March 2018 [27]. The bill seeks to ban commercial surrogacy, to make married women wait five years before finding a surrogate and other such impingements on individual autonomy, which would seem to hinder rather than help the prevention of exploitation in India. Effective monetary remuneration and international law can prevent exploitation of surrogates [28].

Attitudes to surrogacy

Globally, attitudes to gestational surrogacy seem to discriminate between the woman's desire to have a child and the surrogate who enables this. In Sweden, most women have a high acceptance of all methods of assisted reproduction, except surrogacy, thus preferring uterine transplantation were it to become an option [29]. Women surveyed in the UK would prefer uterine transplantation compared to surrogacy as overwhelming as women of Japan would be [30]. As expected, this treatment is only in its infancy, and some women with cancer may be ill advised or physically unable to have a transplant and hence will still find gestational surrogacy as their only option.

In Assam, a low-income state in India, although surrogacy was deemed a desirable option for a childless couple, there was a marked difference in attitude to the surrogate herself, seen either as a 'noble woman' deserving of payment or conversely as bad for 'selling her child' [31]. In a deep conservative society, it has to be remembered that stigmatisation for any sexual or reproductive 'irregularities' can mean a lifetime of exclusion from family or society.

The attitude of clinicians towards gestational surrogacy is indeed varied also, depending on the doctor's own personal training, culture and background. Increasing developments in technology, as well as fluid changes in societal attitudes, can cause dilemmas for the clinical team. The use of

guidelines is essential, but even then, they may not deal with all eventualities and constantly need debate and refinement [32].

Outcomes of surrogacy

Although not the immediate concern of the gynaecologist, it is important if carrying out a clinical procedure to have some understanding of the long-term consequences of one's actions.

Post-surrogacy outcome studies seem to tell a positive tale from many viewpoints. No major differences in physical or psychological outcome have been reported between mothers and children born because of assisted reproduction and those who were conceived naturally [33].

In a longitudinal study of children born through all types of assisted reproduction techniques, the mothers in surrogate families showed less problems in family relationships than gamete donation mothers. The adolescent offspring themselves showed no differences. This study suggests that the absence of a genetic link between mothers and children is more indicative of a problematic mother–child relationship than the absence of a gestational link [34].

There have been concerns that surrogates themselves may find the weeks after the birth difficult in relation to handing over the child that they had carried. Favourable long-term outcomes for the surrogates are reported, however, with no psychological problems at 6 or 12 months later, and up to 10 years after birth, most still had positive feelings about their role in assisting the commissioning family [35].

Surrogacy in relation to the woman with cancer

When a woman is diagnosed with cancer, the emotional impact is enormous, possibly for the first time being confronted with her own mortality. Of all the life issues she has to deal with, survival is usually the primary issue when discussing treatment. Depending on the woman's age and family situation, fertility may be the next most important issue to her, together with her sexuality.

If the cancer or, most likely, its treatment will impinge on her fertility, then egg harvesting has to be carried out before the start of treatment. This clearly requires early discussion of fertility issues so that the woman can make these important decisions before it is very late. Unfortunately, many studies have shown that this is uncommon. For instance, a 2014 study showed that only 9.8% of eligible Dutch female patients with cancer were referred for fertility preservation [36].

Potential areas of ethical conflict in the cancer situation

Although gestational surrogacy appears to have a sound ethical basis as a means of assisted reproduction for a woman with cancer, the involvement of a large number of caregivers has the potential for ethical conflict.

There is the woman with cancer, her partner, if she has one, who will be the father of the child. We have the gestational surrogate and, indeed, the embryo, which is a potential child. The same sex relationships add another dimension to the situation.

If all the adults have equal rights to personal respect, safe clinical care and informed choices in which to exercise their autonomy, then the exercise is ethical.

Unfortunately, there have been many cases, particularly in commercial transnational surrogacy, that the rights of the surrogate have been neglected in the interests of satisfying the needs of the commissioning couple [37]. A small sample of surrogates in India was unable to explain the risks involved in embryo transfer or foetal reduction [38] and had therefore not been able to give true informed consent to these procedures. Surveys of surrogate mothers had previously shown favourable outcomes for all [39], but a recent study of surrogates in India showed they had higher levels of depression during pregnancy and post birth than those of other expectant mothers [40].

This is one of the rare areas in medicine where the autonomous rights of the mother may come in conflict with the rights of the frozen embryo, which will become a child with moral rights of its own.

Arguably, no mother commissioning surrogacy can guarantee her own survival, as life is uncertain, and even a woman who is healthy at commissioning can suddenly develop a life-threatening illness or

have a fatal accident. There does, however, seem to be a weight of moral responsibility on a mother with cancer to assume tragically that she may not be alive into the future child's adulthood or may not, in extreme cases, survive to the time of its birth. This could be likened to the use of surrogacy by an older mother, well past natural childbirth age, who commissions a surrogate to have her child. The clinical emphasis is always on the commissioning mother who is making an autonomous choice, and indeed, better health and development of the child up to the age of 5 years was noted in older mothers [41], but it seems reasonable to consider the long-term future of her child in the context of reduced survival.

There has been much ethical and legal debate about posthumous reproduction where medical advances have made it possible to harvest gametes from recently deceased individuals [42], but a woman recently diagnosed with cancer who commissions a surrogate to bear her child has made clear her express wish to have a child. A part of medical ethics, which is often forgotten, is that human rights should be balanced by responsibilities. It is to be hoped that any woman with cancer would be encouraged, whether legally required or not, to make clear legal provision for the care of the child should anything happen to her.

There have been sad cases of 'surrogate orphans', caused either by the death of a commissioning mother or by divorce or dispute of the commissioning parents when the child has been 'unclaimed'. As the surrogate has been contracted to be the gestational carrier only, she has no moral obligation to claim and care for the child [43]. More harrowingly, there have been cases when the child has been born with a defect and has been rejected by the parent. There are also women who regret the decision to have a baby by surrogate, thus causing complex emotional and legal issues for both the commissioning parents and the surrogate. Conversely, there are situations where there have been multiple claims on the parenthood of the child through gestational, genetic, legal and social ties, thus creating an emotional, legal and ethical nightmare [44].

It has been discussed that when counselling women for reproductive choices, an element of medical paternalism always exists, by making the assumption that deciding to have a child is a better choice than deciding not to have children. Therefore, issues of regret are emphatically discussed with women who wish to terminate their fertility by having sterilisation, with the assumption that giving up the option of childbearing is not always a good choice and one that could regret in the future, whereas counselling for women who wish to use assisted reproduction technology to have a child takes a different emphasis. An assumption is made that when choosing this option, there will be no regrets. The only way to ensure that all choices made are what the patient autonomously chooses is by having impartial discussion on gains and losses in all cases [45].

The issue of pre-implantation diagnosis

Surrogacy, as expected, depends on embryo transfer. Therefore, the issue of the embryo itself is important. Increased genetic testing for BRCA and other mutations has currently generated a situation where this diagnosis could have a major impact on a woman's attitude to childbearing. Unsurprisingly, women with a history of cancer, who were BRCA positive, were influenced by this knowledge when making reproductive decisions [46], and a high proportion of BRCA carriers felt that offering pre-implantation genetic diagnosis and prenatal diagnosis for hereditary breast and ovarian cancer was acceptable [47]. The use of pre-implantation genetic testing for other inherited conditions such as Down's syndrome is controversial in the non-surrogate situation and needs further exploration when used before surrogacy particularly in patients with cancer. The use of blastocyst biopsy in the older woman clearly reduces the number of unsuccessful embryo transfers and results in less miscarriages overall.

Apart from physical characteristics and defects, there is anxiety that using assisted reproduction technology could increase the risk of developing late-onset disease by disrupting the embryo's epigenetic reprogramming. This would create a major ethical dilemma of protecting the parents' autonomous decision to have a child, with the concept of non-malevolence in protecting the potential child from harm [48]. Egg donation may be an option for women with cancer wishing to avoid these issues, but oocyte supply always falls short of need, and egg sharing, a usually altruistic source of oocytes, needs better information given to the patient to make this option more accessible [49]. The

concerns, however, about possible negative epigenetic downstream consequences seem to be unfounded in a long-term follow-up study of IVF offspring (Halliday, personal communication).

The role of the gynaecologist or oncologist

The gynaecological oncologist who cares for a patient seeking this option should understand the pros and cons of gestational surrogacy and be able to discuss the potential harms and benefits of surrogacy with the same degree of knowledge and professionalism as they would with any other method of assisted reproduction. This is not just an issue of embryo implantation but an issue of understanding the ethical, legal and emotional aspects of this method of bearing a child.

Informed consent is essential to all medical and surgical procedures, and surrogacy is no different.

Having a child usually involves a heterosexual couple, but currently, frequently single women or same-sex couples are opting for assisted conception. It must be remembered that not only heterosexual couples wish to use surrogates but also successful parenthood can be within a variety of family structures such as single women and same-sex partners. Gay fathers using a surrogate had better contact with the surrogate than the egg donor, and children born from these arrangements largely felt very positive towards the surrogate [50]. Raising a child ideally means a long-term commitment from the woman who gives birth to the child. Surrogacy changes this and may change childbirth into a societal issue with increasing legal involvement because of changing concepts of parenthood [51].

Many women who opt for surrogacy have health issues that make them unable to become pregnant and carry a child. If a woman has a poor prognosis cancer, however, such as an ovarian malignancy, the issue of her own life expectancy has to be considered when surrogacy is chosen as an option.

Fertility preservation in women with cancer

Women diagnosed with cancer face fertility preservation dilemmas at the same time as they have to cope with the physical and emotional impact of cancer. This often includes young women facing not only potential shortening of their expected lifespan but also loss of motherhood. Emotional and social factors in the woman's life, such as partner and family issues, are important in making fertility preservation decisions, and operational issues such as finance, accessibility health outcomes and comfort have to be considered [52]. Not all women accept the opportunity of fertility preservation, frequently because of overwhelming anxieties about cancer treatments and survival [53] despite favourable evidence that timely fertility preservation does not impact negatively on cancer outcomes. Women have said that they did not feel supported in making these crucial decisions and were often not referred appropriately.

It is clear that patients with cancer would benefit from more evidence-based fertility preservation information received at cancer diagnosis, in advance of being seen by the fertility specialist [54]. The need for high-quality information giving, coupled with skilled and sensitive emotional support, can be delivered in a dedicated unit with appropriately trained staff, such as that demonstrated in Switzerland [55].

The offer of fertility preservation in itself, of course, does not guarantee a living child. All methods of assisted conception have a failure rate, and surrogate conceptions are no exception. Failed surrogate conceptions, which are noted as failed 'attempts' in the surrogate industry, involve losses, often of a substantial nature, to both the surrogate and the commissioning parents [56]. The commercial surrogate herself can suffer substantial loss of income and therefore disappointment in herself, and an uncertain future as a surrogate, which could impact, in many cases, on her chosen route out of poverty. The altruistic surrogate will experience disappointment on behalf of the commissioning couple and also disappointment in herself as being unable to perform the altruistic task to which she was committed. To the commissioning couple, any failed surrogacy attempt is yet another loss in their catalogue of previous losses, and to cancer sufferers, once the egg store is used up, all hopes of having a child to whom she is genetically connected would have been lost. Overall, however, women who have experienced egg freezing in the face of a cancer diagnosis have in general expressed gratitude for the opportunity to be able to hope to fulfil their desires for motherhood and have stated that 'it holds the promise of life in terms of recovery and future childbearing' [57].

Summary

Gestational surrogacy is a successful, evidence-based method of assisted reproduction for a woman with gynaecological cancer. When the ethical aspects of surrogacy are included in the decision-making process by both commissioning parent(s) and the surrogate, the outcome is likely to be better.

Early referral of a woman with cancer, whose fertility is likely to be impacted, to a multidisciplinary team for counselling should be the standard of care. Evidence-based information is mandatory, and the pros and cons of selecting surrogacy must be emphasised.

If gestational surrogacy is carried out within an accepted medical ethical framework, it is a highly acceptable way to assist women with cancer to have a child. This requires the clinical team to fulfil their duty of care to the patient by treating the woman with cancer and the surrogate with equal respect for the wellbeing and autonomy of both, regardless of any intervening commercial considerations.

Practice points

1. Fertility-sparing consultations should be offered to all women at an early stage post diagnosis.
2. Impartial, evidence-based information on all her options, including surrogacy, should be given to the woman for her to make a decision based on informed consent.
3. The autonomous views of the patient should be respected.
4. Egg harvesting must take place before commencement of treatment.

Research agenda

- a) Transnational surrogacy and the health, social and emotional welfare of the surrogate mother.
- b) Surrogacy and women with cancer, long-term outcomes for the mother and the child.
- c) Pre-implantation genetic testing in surrogate mothers

Conflicts of interest

The author declares no conflict of interest.

References

- [1] Gillon R. Medical ethics: four principles plus attention to scope. *BMJ* 1994;309:184.
- [2] Hope T. *Medical Ethics. A very short introduction*. New York: Oxford University Press; 2004.
- [3] Beauchamp TL, Childress JF. *Principles of biomedical ethics*. fourth ed. New York: Oxford University Press; 1994.
- [4] Ber R. Ethical Issues in gestational surrogacy. *Theor Med Bioeth* 2000;21:153–69.
- [5] Gerrits T, Reis R, Didi DM, Jan AM, Anita PH. Bioethics in practice: addressing ethically sensitive requests in a Dutch fertility clinic. *Soc Sci Med* 2013;98:330–9.
- [6] Sunkara SK, Antonisamy B, Selliah HY, Kamath MS. Perinatal outcomes after gestational surrogacy versus autologous IVF: analysis of national data. *Reprod Biomed Online* 2017;35:708–14.
- [7] Murugappan G, Farland LV, Missmer SA, Anchan RM, Ginsburg ES. Gestational Carrier in assisted reproductive technology. *Fertil Steril* 2018;109:420–8.
- [8] Zhao J, Xu B, Zhang Q, Li YP. Which one has a better obstetric and perinatal outcome in singleton pregnancy, IVF/ICSI or FET?: a systematic review and meta-analysis. *Reprod Biol Endocrinol* 2018;14:51–7.
- [9] Moravek MB, Confino R, Smith KN, Kazer RR, Klock SC, Lawson AK, et al. Long-term outcomes in cancer patients who did or did not pursue fertility preservation. *Fertil Steril* 2018;109:349–55.
- [10] Letourneau JM, Sinha N, Walk K, Harris E, Quinn M, Imbar T, et al. Random start ovarian stimulation for fertility preservation appears unlikely to delay initiation of neoadjuvant chemotherapy for breast cancer. *Hum Reprod* 2017;32:123–9.

- [11] Fuchs EL, Berenson AB. Outcomes for gestational carriers versus traditional surrogates in the United States. *J Womens Health* 2018;27:640–5.
- [12] Patrone T. Is paid surrogacy a form of reproductive prostitution? A Kantian perspective. *Camb Q Healthc Ethics* 2018;27:109–22.
- [13] Musio A. Human capital and self-entrepreneurship. The concept of robbed time. *Cuad Bioeth* 2018;29:193–201.
- [14] Ryman E, Fulfer K. The patient-worker: a model for human research subjects and gestational surrogates. *Develop World Bioeth* 2017 Jan 13. doi: 10.1111/dewb.12141 [epub ahead of print].
- [15] Donchin A. Reproductive tourism and the quest for global gender justice. *Bioethics* 2010;24:323–32.
- [16] White PM. 'One for sorrow, two for joy?' American embryo transfer guideline recommendations, practices, and outcomes for gestational surrogate patients. *J Assist Reprod Genet* 2017;34:431–43.
- [17] White PM. Commercialization, altruism, clinical practice: seeking explanation for similarities and differences in Californian and Canadian gestational surrogacy outcomes. *Wom Health Issues* 2018;2:239–50.
- [18] Woodward TL, Hoffman AS, Crocken LC, Holman DA, Ma J, Bassett RL, et al. Pathways:patient-centred decision counselling for women at risk of cancer-related infertility: a protocol for a comparative effectiveness cluster randomised trial. *BMJ Open* 2018;8, e019994.
- [19] Inhorn MC, Tremayne S. Islam, assisted reproduction and the bioethical aftermath. *J Relig Health* 2016;55:422–30.
- [20] Perkins KM, Boulet SL, Levine AD, Jamieson DJ. Differences in the utilisation of gestational surrogacy between states in the US. *Reprod Biomed Soc Online* 2018;5:1–4.
- [21] Feldman EA. Baby M turns 30: The law and policy of surrogate motherhood. *Am J Law Med* 2018;44:7–22.
- [22] Tremellen K, Everingham S. For love or money? Australian attitudes to financially compensated (commercial) surrogacy. *Aust N Z J Obstet Gynaecol* 2016;56:558–63.
- [23] Kristinsson K. Legalising altruistic surrogacy in response to evasive travel? An Icelandic proposal. *Reprod Biomed Soc Online* 2017;3:109–19.
- [24] Lozanski K. Transnational Surrogacy: Canada's contradictions. *Soc Sci Med* 2015;124:383–90.
- [25] Newson AJ. Compensated transnational surrogacy in Australia: time for a comprehensive review. *MedJ Aust* 2016 18;204:33–5.
- [26] Millbank J. Rethinking "commercial" surrogacy in Australia. *J Bioeth Inq* 2015;12:477–90.
- [27] Timms O. Ending commercial surrogacy in India: significance of the surrogacy (regulation) bill 2016. *Indian J Med Ethics* 2018;3:99–102.
- [28] Ramskold LAH, Posner MP. Commercial surrogacy: how provisions of monetary remuneration and powers of international law can prevent exploitation of gestational surrogates. *J Med Ethics* 2013;39:397–402.
- [29] Wennberg A, Rodriguez-Wallberg K, Milsom I, Brannstrom M. Attitudes towards new assisted reproductive technologies in Sweden: a survey in women 30–39 years of age. *Acta Obstet Gynecol Scand* 2016;95:38–44.
- [30] Brannstrom M, Dahm PK, Greite R, Molne J, Diez-Garcia C, Tullius S. Uterus transplantation: a rapidly expanding field. *Transplantation* 2018;102:569–77.
- [31] Arvidsson A, Vauqueline P, Johnsdotter S, Essen B. Surrogate mother-praiseworthy or stigmatized:a qualitative study on perceptions of surrogacy in Assam, India. *Glob Health Action* 2017;10:1328890. doi:10 1080/16549716.2017.
- [32] Klitzman R. Unconventional combinations of prospective parents: ethical challenges faced by IVF providers. *BMC Med Ethics* 2017;18:18.
- [33] Soderstrom-Antilla V, Wennerholm UB, Loft A, Pinborg A, Aittomaki K, Romundstadt LB, et al. Surrogacy: outcomes for surrogate mothers, children and the resulting families—a systematic review. *Hum Reprod Update* 2016;22:260–76.
- [34] Golombok S, Ilioli E, Blake L, Roman G, Jadva V. A longitudinal study of families formed through reproductive donation: parent-adolescent relationships and adolescent adjustment at age 14. *Dev Psychol* 2017;53:1966–77.
- [35] Jadva V, Imrie S, Golombok S. Surrogate mothers 10 years on: a longitudinal study of psychological well-being and relationships with the parents and child. *Hum Reprod* 2015;30:373–9.
- [36] Bastings L, Baysal O, Beerendonkkk CC, Braat DD, Nelen WL. Referral for fertility preservation counselling in female cancer patients. *Hum Reprod* 2014;29:2228–37.
- [37] Tanderup M, Reddy S, Patel T, Nielsen BB. Reproductive ethics in commercial surrogacy: decision making in IVF clinics in New Delhi, India. *J Bioeth Inq* 2015;12:491–501.
- [38] Tanderup M, Reddy S, Patel T, Nielsen BB. Informed consent in medical decision-making in commercial gestational surrogacy: a mixed methods study in New Delhi, India. *Acta Obstet Gynecol Scand* 2015;94:465–72.
- [39] Imrie S, Jadva V. The long-term experiences of surrogates: relationships and contact with surrogacy families in genetic and gestational surrogacy arrangements. *Reprod Biomed Online* 2014;29:424–35.
- [40] Lamba N, Jadva V, Kadam K, Golombok S. The psychological well-being and prenatal bonding of gestational surrogates. *Hum Reprod* 2018 Feb 23. <https://doi.org/10.1093/humrep/dey048> [epub ahead of print].
- [41] Sutcliffe A, Barnes J, Belsky J, Gardiner J, Melhuish E. The health and development of children born to older mothers in the United Kingdom: observational study using longitudinal cohort data. *BMJ* 2012;345:e5116.
- [42] Hashiloni-Shalev Y, Schickkklanz S. A cross-cultural analysis of posthumous reproduction: the significance of the gender and margins-of-life perspectives. *Reprod Med Soc Online* 2017;4:27–33.
- [43] Parks JA, Murphy TF. So not mothers: responsibility for surrogate orphans. *J Med Ethics* 2018;44:551–7.
- [44] Johnson KM. Contingent maternities? Maternal claims-making in third party reproduction. *Social Health Illness* 2017;39:1349–64.
- [45] Mertes H. The role of anticipated decision regret and the patients best interest in sterilisation and medically assisted reproduction. *J Med Ethics* 2017;43:314–8.
- [46] Chan JL, Johnson LNC, Sammel MD, DiGiovanni L, Voong C, Domchek SM, et al. Reproductive decision making in women with BRCA Mutations. *J Genet Council* 2017;28:594–603.
- [47] Gietel- Habbets JJ, De Die-Smulders CE, Dersk- Smeets IA, Tibben A, Tjan-Heijnen VC, van Golde R. Awareness and attitude regarding reproductive options of persons carrying a BRCA mutation and their partners. *Hum Reprod* 2017;32:588–97.
- [48] Roy M, Dupras C, Ravitsky V. The epigenetic effects of assisted reproductive technologies: ethical considerations. *J Dev Orig Health Dis* 2017;8:436–42.

- [49] Bracewell-Milnes T, Saso S, Abdalla H, Thum MY. A systematic review investigating psychosocial aspects of egg sharing in the United Kingdom and their potential effects on egg donation numbers. *Hum Fertil* 2017;26:1–11.
- [50] Carone N, Baiocco R, Manzi D, Antonucci C, Caricato V, Pagliarulo E, et al. Surrogacy families headed by gay men: relationships with surrogates and egg donors, father's decisions over disclosure and children's views on their surrogacy origins. *Hum Reprod* 2018;33:248–57.
- [51] Henrion R, Commoision X, Commoision XV11. Surrogate pregnancy with regard to marriage between persons of the same sex. *Bull Acad Natl Med* 2014;198:917–50.
- [52] Inhorn MC, Birenbaum-Carmeli D, Westphal LM, Doyle J, Gleicher N, Meirow D, et al. Medical egg freezing: the importance of a patient- centred approach to fertility preservation. *J Assist Reprod Genet* 2017. <https://doi.org/10.1007/s10815-017-1081-5>.
- [53] Hershberger PE, Sipsma H, Finnegan L, Hirshfeld-Cytron J. Reasons why young women accept or decline Fertility Preservation after cancer Diagnosis. *J Obstet Gynecol Neonatal Nurs* 2016;45:123–34.
- [54] Jones G, Hughes J, Mahmood N, Smith E, Skull J, Ledger W. What factors hinder the decision making process for women with cancer and contemplating fertility preservation treatment? *Hum Reprod Update* 2017;23:433–57.
- [55] Besse D, Bellavia M, de Ziegler D, Wunder D. Fertility and cancer: psychological support in young women who contemplate emergency assisted reproductive technologies (ART) prior to chemo-and/or radiation therapy. *Swiss Med Wkly* 2010;140:w13075. <https://doi.org/10.4414/smw.2010.13075>.
- [56] Mitra S, Schicktanz S. Failed surrogate conceptions: social and ethical aspects of preconception disruptions during commercial surrogacy in India. *Philos Ethics Humanit Med* 2016;11:9–16.
- [57] Inhorn MC, Birenbaum-Carmeli D, Patrizio P. Medical egg freezing and cancer patients hopes: Fertility preservation at the intersection of life and death. *Soc Sci Med* 2017;195:25–33.