The ethics of pregnancy testing

Emma Sharkey

Siân Griffiths

Abstract

Anaesthesia, surgery and ionizing radiation may all prove harmful to an undetected pregnancy. Elective procedures should be deferred at least until the second trimester to reduce the risk of teratogenicity or spontaneous abortion. If surgery cannot be delayed, anaesthetic or surgical techniques can be modified, and the use of intraoperative ionizing radiation avoided where possible. Determination of pregnancy status is mandated by current national guidelines prior to any procedure that may compromise the mother or fetus. In the vast majority of cases where the patient has the capacity to consent there are no ethical or clinical dilemmas. However, girls under the age of 16 years have differing levels of capacity resulting in various ethical concerns. Guidelines produced by the Royal College of Paediatric and Child Health provide a template to ensure departments maintain national standards, protecting patients from harm whilst assuring patient confidentiality and autonomy are respected.

Keywords Capacity; children; consent; ethics; pregnancy testing

Royal College of Anaesthetists CPD Matrix: 1F01, 1F02, 1F04, 1F05

Learning objectives

After reading this article, you should be able to:

- understand the importance of establishing pregnancy status in adolescent females prior to anaesthesia, surgery or exposure to ionizing radiation
- discuss the ethical considerations for routine pregnancy testing in this age group
- be aware of the guidelines issued by the Royal College of Paediatrics and Child Health

Background

Anaesthesia, surgery and ionizing radiation may all prove harmful to an undetected pregnancy.[1] An integral part of the preoperative assessment is to ensure pregnancy has been considered in all women of childbearing age. In 2003, the National Institute of Care Excellence (NICE) advised that women should be asked sensitively about the possibility of pregnancy and offered a pregnancy test with their consent if there is uncertainty.[2]

The National Reporting and Learning System received 42 reports between 2003 and 2009 when pregnancy status was not ascertained before a planned procedure. In three of these cases, the patient went on to have a spontaneous abortion. A further 12 cases were managed by the NHS Litigation Authority for legal proceedings. In response to this, the National Patient Safety Agency (NPSA) released a rapid response alert 2010/RRR011 'Checking pregnancy before surgery'.[3]

Similar guidance exists in the United States where it is recommended, but not mandated, that pregnancy testing is offered to all women of childbearing age. Routine pregnancy testing of all adolescent girls remains controversial but it is recognized that continuing with a procedure in a patient who may be pregnant would be unwise.

NICE guidance did not define 'child bearing' age, but the NPSA reported some organizations have interpreted this to mean 12–55 years. Over 21% of British girls have their first menstrual period before their 12th birthday and pregnancy has been reported below this age group.[4]

Teenage pregnancy in the UK

Although the teenage pregnancy rate in the UK is falling it is still the highest in Western Europe.[4] In 2013, conception rates in England and Wales for under 16 year olds was 4.9 per 1000.[5] Up to 70% of these pregnancies occurred in 15 year olds and 62% of these girls chose to terminate their pregnancy. Based on a total of 60,000 surgical procedures in females aged 12–15 years, there are between 100 and 150 unrecognized pregnancies every year that are wanted. Although the incidence of unknown pregnancy in this age group is very low, there remains a duty to protect both the patient and fetus.

Risks of anaesthesia or surgery when pregnant

Up to 15% of women with a known pregnancy miscarry during the first 20 weeks and up to half of unrecognized pregnancies are lost in the first trimester.[1] Some studies suggest that there may be an increased incidence of spontaneous abortion and very low and low birth weight infants following exposure to anaesthesia in the first or second trimester.[6] Other studies have shown an association between first trimester surgery and anaesthesia and the risk of congenital abnormalities, specifically neural tube defects and hydrocephalus.[7]

Scientific evidence does not, however, clearly demonstrate an association between early pregnancy and teratogenicity or miscarriage, and in reality a single exposure to modern anaesthetics has not been shown to have an adverse effect on early pregnancy. In practice though, the clinical management differs when the patient is known to be pregnant.[2] Many planned procedures can be delayed until the second trimester or deferred until the patient is not pregnant.[7] Alternatively, if the procedure must be performed, the surgical or anaesthetic technique can be modified.[8] By being aware of the existence of a pregnancy, the clinical team and patient can discuss the options available.

Establishing pregnancy status

National guidance states patients should be asked sensitively about the possibility of pregnancy and offered a pregnancy test

Emma Sharkey FRCA is a Specialist Registrar in Anaesthesia at Guy's and St. Thomas' Hospital NHS Foundation Trust, London, UK. Conflicts of interests: none declared.

Siân Griffiths FRCA LLM is a Consultant Anaesthetist at Guy's and St. Thomas' Hospital NHS Foundation Trust, London, UK. Conflicts of interests: none declared.

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with their consent if there is uncertainty.[2] However, ascertaining pregnancy status in adolescents is challenging.

A study by Donaldson et al. demonstrated inconsistency when enquiring about pregnancy status in girls.[4] Their local survey revealed 35% of nurses relied on girls' appearance or behaviour as a trigger to enquire. Under 16-year-old girls may be sensitive to questioning about their menstrual history and sexual history. They may be reluctant to admit that they might be pregnant especially if asked in the presence of their parents or carers.[8] There may also be a fear of legal recrimination if admitting to under age sexual activity.[9] This discussion has the potential to add further anxiety to what many young girls will perceive to be a stressful experience when presenting for surgery.

Teenage girls may have erratic menstrual cycles that might make it difficult to accurately recall dates of their last menstrual period, which in itself is an unreliable indicator of pregnancy.[8] The patient may also be unaware that they are pregnant.

Consent

Children over 16 years of age are presumed competent to consent to treatment, and this includes pregnancy testing. This does not apply to refusal of treatment. Children under 16 years must be *Gillick* competent, that is, they must be able to show they can understand the nature and implications of the proposed treatment, including the risks and alternative options.[10]

Donaldson et al. proposed routine testing for all girls who have reached menarche.[4] It has been argued that routine testing helps to standardize the management. Whilst pregnancy testing has excellent reliability there are occasions when a false positive result may occur, such as quiescent trophoblastic disease, which may cause unnecessary stress to the patient.[8]

On the other hand, many would consider mandatory pregnancy testing an intrusion into a patient's autonomy.[8] A *Gillick* competent child has arguably as much right to confidentiality with pregnancy testing as she does for other procedures.[9] The preoperative assessment does not always allow for this confidentiality. An adolescent may be expected to disclose confidential information with parents or carers present placing them in a difficult situation.

Ethical considerations for mandatory pregnancy testing

Routine testing to identify a minority of pregnancies that are not disclosed or not known about may seem disproportionate. Many of these young women are likely to request a termination and by protecting this minority there is the potential for harming relationships between all patients and their parents or carers.

The cost of routine testing that will identify a minority of unknown pregnancies must be balanced against the wider cost implications that may ensue if a complication results from proceeding.[7] This could include potential litigation from a spontaneous miscarriage or healthcare costs associated with the management of a congenital anomaly.

Consent for testing should be determined by capacity rather than age alone.[7] However, others would argue that it is unethical to expose a patient and fetus to potentially harmful clinical procedures.[8] Seeking explicit consent also poses ethical considerations. Refusal of testing may be as informative as a positive pregnancy test. In adolescents the consent process may be seen as acknowledgement of sexual activity.

Guidance issued by the Royal College of Paediatrics and Child Health

Guidelines issued by the Royal College of Paediatrics and Child Health (RCPCH) in 2012 establish an evidence-based approach to assess pregnancy status in children under 16 years of age.[11] This guidance was issued to improve patient safety, encourage informed decision making, and provide consistency in the management. They recognize the challenges posed by the adolescents and strive to balance the importance of determining pregnancy status against inappropriate questioning when sexual activity is unlikely.

The RCPCH guidelines suggest that clinicians responsible for the procedure should agree local policies that reflect a balance of risks. Procedures carrying a significant risk to a pregnant patient and or fetus (e.g. scoliosis correction surgery) require a pregnancy test. However, selective enquiry may be sufficient for low-risk procedures. A suggested flow sheet is illustrated in Figure 1. The flow sheet was developed around several key beliefs:

- Pre-admission patient information helps to reduce embarrassment and sensitivity around questions about pregnancy on admission.
- Age of onset of menarche is wide (7−17 years). However, prevalence data suggests the incidence of pregnancy in under 13 year olds presenting for clinical diagnosis or treatment is negligible.
- Procedures that are high risk to an undisclosed pregnancy may make consent for testing of urine more appropriate in adolescents as direct enquiry may risk not detecting all pregnancies.
- Professional judgement must be applied to ascertain *Gillick* competence before establishing pregnancy status.
- As a minimum, verbal consent for testing must be documented.
- All females have a right to be asked about a potential pregnancy in confidence, separate from parents or carers. All information should be treated confidentially unless there is a safeguarding issue.
- Positive tests should be repeated, along with a blood test to confirm a pregnancy. A senior member of the team must discuss the result of the test, along with what it means for that particular procedure with the patient. With the permission of the patient, and for patients not deemed competent, parents or carers should be encouraged to join the discussions.

A separate flowchart is described for the management of patients requiring ionizing radiation. In addition specific guidance is issued for patients presenting for emergency procedures where, in general, they must be managed by the multidisciplinary team on an individual basis.

Safeguarding

The local designated nurse and/or doctor for child protection should be informed if:

- A child under the age of 13 years admits to sexual activity as, in law, they are not deemed competent to consent.

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