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Intraoperative blood cell salvage in obstetrics

Understanding NICE guidance –
information for people considering
the procedure, and for the public



Ordering information

You can download the following documents from www.nice.org.uk/IPG144

- this booklet
- the full guidance on this procedure.

For printed copies of the full guidance or information for the public, phone the NHS Response Line on 0870 1555 455 and quote:

- N0935 (full guidance)
- N0936 (information for the public).

National Institute for Health and Clinical Excellence

MidCity Place
71 High Holborn
London
WC1V 6NA

www.nice.org.uk

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About this information

The National Institute for Health and Clinical Excellence (NICE) is the independent organisation responsible for providing national guidance on the promotion of good health and the prevention and treatment of ill health. One of NICE's roles is to produce guidance (recommendations) on whether interventional procedures are safe enough and work well enough to be used routinely in the NHS in England, Wales and Scotland.

This information describes the guidance that NICE has issued on a procedure called intraoperative blood cell salvage when it's used following haemorrhage in childbirth. It is not a complete description of what is involved in the procedure – the woman's healthcare team should describe it in detail.

NICE has looked at whether intraoperative blood cell salvage is safe enough and works well enough for it to be used routinely when women haemorrhage (bleed heavily) after giving birth (vaginally or by caesarean section).

To produce this guidance, NICE has:

- looked at the results of studies on the safety of intraoperative blood cell salvage and how well it works
- asked experts for their opinions
- asked the views of the organisations that speak for the healthcare professionals and the women who will be affected by this guidance.

This guidance is part of NICE's work on 'interventional procedures' (see 'Further information' on page 10).

About the procedure

Intraoperative blood cell salvage is a method of collecting the blood lost during an operation, purifying it to remove any contaminants and then putting it back into the person's blood system. The procedure is common during surgery on the heart, bones and blood system, but so far it has not been used routinely for women having a caesarean section. This is because there have been concerns about amniotic fluid and blood cells from the baby contaminating the blood that goes back into the mother (amniotic fluid is the fluid that surrounds the baby in the womb – some passes into the baby's blood system). If these contaminants get back into the mother's blood, they could cause a rare but serious allergic condition called amniotic fluid embolism or they may trigger what's known as haemolytic disease in future pregnancies.

In amniotic fluid embolism, the allergic reaction to contaminants from the amniotic fluid make the mother's heart and lungs stop working properly. In haemolytic disease, the mother's immune system becomes sensitised to the 'foreign' blood cells (if the baby has a different rhesus blood group) or contaminants from the amniotic fluid. This doesn't cause problems at the time because the baby has been born. But in later pregnancies, the immune system recognises the foreign blood cells or amniotic fluid that are circulating in the mother's blood from the developing baby. It makes antibodies to attack them, and these cross the placenta and cause problems to the baby.

When blood cell salvage is used during a caesarean section, the blood that is lost during the haemorrhage is sucked away through a narrow tube. It goes into a tank where it is filtered to remove as many contaminants as possible and then washed so it is ready to go back into the woman's blood system. The woman is given a transfusion of her own blood either during or after the operation. The potential advantages of having a transfusion of your own blood are that there should be fewer allergic reactions and infections, and the blood is known to be the correct type for you.

How well the procedure works

What the studies said

One study compared women who had the new procedure with women who had a standard blood transfusion (with blood from someone else) after a haemorrhage. The study found there were no differences between the women in the two groups – they stayed in hospital for the same time, needed help breathing for the same time, and had the same amount of illness from infection.

Another study also compared women who had the new procedure with women who had a standard blood transfusion following a caesarean section. Women who had a transfusion with their own blood stayed in hospital for a significantly shorter time (just over 5 days) than the women who had the standard transfusion (who stayed in hospital for just over 7 days).

What the experts said

The experts said that how well the blood salvage procedure worked might depend on how much blood a woman lost and how quickly it was lost.

Risks and possible problems with the procedure

What the studies said

In one study, there were no cases of amniotic fluid embolism in the 139 women who had the blood cell salvage procedure. Similarly, in another study involving 54 women, there were no problems connected with contaminants in the blood that went back into the women. When blood saved from the women in this study was analysed, it was found that blood from 3 out of 15 women contained foreign blood cells from the baby (that is, these cells hadn't been removed during the cleaning process). None of this blood was given back to these women.

Four other reports have also said that there haven't been any problems with contaminants when the blood has been cleaned using the type of filter that is nearly always used in the blood cell salvage procedure.

What the experts said

The experts said that haemolytic disease and amniotic fluid embolism were possible risks of the procedure.

What has NICE decided?

NICE has considered the evidence on intraoperative blood cell salvage. It has recommended that when doctors use this procedure for women who have haemorrhaged during childbirth they should be sure that:

- whenever possible, the woman understands what is involved and the theoretical risks, and agrees (consents) to have the procedure, and
- the results of the procedure are monitored.

If there are any problems following the procedure, the doctor should report them to the Medicines and Healthcare products Regulatory Agency (www.mhra.gov.uk).

Finally, blood cell salvage should be done by teams of healthcare professionals who do it regularly and build up expertise and experience.

What the decision means for you

Your doctor may have offered you blood cell salvage. NICE has considered this procedure because it is relatively new. NICE has decided that although the procedure is used in other types of surgery, there are some theoretical risks connected with its use in women giving birth. If it's possible given the circumstances, you should understand these risks before you agree to have the procedure and your doctor should discuss them with you. Some of these may be described above.

NICE has also recommended that some details should be collected about every woman who has problems following the blood salvage procedure. These details will be held confidentially and will not include patients' names. The information will be used to see what type of problems happen. If this happens to you, you will be asked to agree to your details being entered into an electronic database for this purpose. A clinician looking after you will fully explain the purpose of collecting the data and what details will be held. You will be asked to sign a consent form.

Further information

You have the right to be fully informed and to share in decision-making about the treatment you receive. You may want to discuss this guidance with the doctors and midwives looking after you.

The NICE website (www.nice.org.uk) has further information about NICE, the Interventional Procedures Programme and the full guidance on intraoperative blood cell salvage that has been issued to the NHS. The evidence that NICE considered in developing this guidance is also available from the NICE website.

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MidCity Place
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