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Early PPROM: women and babies who should not be lost in the system

There are no national or international agreements about how to manage women with early preterm prelabour rupture of membranes, and services are inadequately organised for their needs, write Laura Goodfellow, Ciara Curran, and Angharad Care

Laura Goodfellow,¹ Ciara Curran,² Angharad Care¹

Maternity services in the UK are rightly under public scrutiny. Mothers in the UK are about three times more likely to die within 42 days of pregnancy than women in Denmark and Norway.¹ But there are national drives to improve equity and quality of care, support the workforce, and listen to patients.²⁻⁴

Most cases of the preterm prelabour rupture of membranes (PPROM) occurring after 24 weeks of pregnancy have a good outlook, with care underpinned by national guidelines.⁵ But for the one in 1000 women who experience early PPROM between 16 and 23 weeks' gestation, the current initiatives to improve pregnancy outcomes are likely to be inadequate. These women often fall through the cracks between emergency departments and midwifery, gynaecology, obstetrics, and neonatology services, and are left unsupported because healthcare staff lack guidance about how or where to manage their care. Conflicting information adds to psychological distress for women and families facing early PPROM.⁶ Very little evidence exists about the optimal management of early PPROM from which to formulate guidelines.⁵

In early PPROM, the protective membranes surrounding the baby rupture, resulting in leaking amniotic fluid before the onset of labour. The baby remains alive, but at risk of labour commencing at a gestation that is not compatible with life. The outlook for the babies after PPROM under 23 weeks' gestation is often judged to be so poor that termination is offered, and in many cases advised. We cannot understate the gravitas of the decision to end a wanted pregnancy for women and their families. In this vulnerable position, they rely heavily on doctors' advice and require evidence to help support their decision making.

For women who choose to continue their pregnancy, many will spontaneously labour and experience a mid-trimester pregnancy loss. For pregnancies that pass the threshold of viability (22-24 weeks' gestation in the UK⁷), it is unclear at what stage women should be delivered by their maternity teams. To improve the chance of the baby surviving, the pregnancy needs to continue, but during this time the baby and mother are at risk of serious complications including cord prolapse, placental abruption, infection, and potentially sepsis and death. A planned early preterm birth by induction of labour or caesarean section could avoid some of these complications but increases the risk of neonatal death or severe disability due to complications of extreme prematurity.⁸

In the UK, emergency departments and gynaecology services often care for women at ≤ 20 weeks of pregnancy, and obstetric services are provided after this gestational age threshold. This results in fragmented maternity care when women's pregnancies with early PPROM make it past the 20 week cut-off but puts extra pressure on midwives who care for women throughout pregnancy but are unlikely to be familiar with PPROM before 23 weeks' gestation.

Quoted rates of complications and survival of the baby after PPROM can vary between clinicians and departments. Members of the patient support group, Little Heartbeats, report that it is fairly common for doctors to quote a "0% chance of intact survival" for the baby, encouraging termination because of the risk of maternal death. And can you blame them? Published research shows neonatal survival to hospital discharge without severe morbidity to be under 3%.^{9,10} Other retrospective cohort studies give more optimistic figures for neonatal survival to discharge (17-40%), although these data are based in a small number of centres so clinicians may be concerned about generalisability.¹¹⁻¹⁸

Our recently published research in *BMJ Medicine*¹⁹ gives new insight into PPROM under 23 weeks' gestation by showing that neonatal survival, although poor, is now better than expected. Two thirds of women in the UK now continue their pregnancies, of whom 44% have babies born alive and 26% take home surviving babies. Furthermore, over half of the surviving babies do not appear to have severe morbidity at discharge. Longer term data are urgently needed about the health of the babies into childhood and beyond, appropriately focused to answer the questions most important to prospective parents.

Our study also identifies the risk of maternal death secondary to sepsis in women with early PPROM.¹⁹ Importantly, 10% of women who opted for termination of pregnancy after they had first seen a doctor with early PPROM still developed sepsis, compared with 13% of women who initially chose to continue their pregnancy—and is a reminder that infection can be the cause rather than the consequence of early PPROM. Therefore, immediate terminations might not avoid all maternal deaths, and these patients should be recognised as high risk with early involvement of senior members of staff in their care. Mid-trimester PPROM has featured in five UK maternal mortality reports,²⁰⁻²⁴ in a recent report of maternal deaths in France,²⁵ and in the media,^{26,27} mostly due to sepsis. Furthermore, the 2016-18 UK Confidential Enquiry into maternal deaths

recommended that women with early PPRM should be sensitively counselled about the risks, symptoms, and management of sepsis, including maternal mortality and potential for serious morbidity such as hysterectomy.²² This counselling should be given regardless of a woman's choices about continuation of the pregnancy and gestation of the baby.

PPROM under 23 weeks' gestation is too uncommon for one clinician to gain adequate experience from clinical practice alone, or to facilitate interventional research at a small number of centres. But it is common enough that at the UK population level, it affects many people. Our research provides data to allow more unified counselling about the outlook for women and babies after early PPRM and informed decisions about whether to continue a pregnancy.

Unless women have signs of chorioamnionitis, the decision to continue pregnancy will never be clear cut. We have more data to facilitate this difficult counselling, and a baseline for interventions aimed at improving outcomes. Now that we understand the level of risk attributed to this pathology, we need expert consensus, evidence based research, clinical guidelines, and a reorganisation of services to find the best care for these women and babies.

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