Research, Education & Travel Grants 2011
Winner of the SEA UK (Greaves Award)
Dr Peter Lang

Project Title:

"Pregnant mothers admitted to the Intensive Care Unit: A retrospective review"

To be presented as a poster at the 9th International Scientific Meeting of the Royal College of Obstetricians and Gynaecologists, Athens, Greece, 28-30th September 2011

Project Description

Most pregnant mothers are fit and well. Additionally, with public health and maternity care advances over recent decades, significant pregnancy-associated morbidity and mortality are, fortunately, now rare. When they occur, however, they have profound physical and emotional consequences for patients, their families and healthcare professionals involved. Importantly, they also call into question current clinical practices and protocols.

Under the supervision of Dr Seosoon Seah, Consultant Anaesthetist, and Mr Toh-Lick Tan, Consultant Obstetrician, at Ealing Hospital, London, I led an investigation into why some pregnant mothers deteriorate into critical illness requiring intensive care (ITU) admission and what, if anything, can be done to avoid such events in future. I will present our findings at the above international conference.

We analyzed the maternity, medical and ITU notes for such patients from a two-year period (2009-10). We compiled a database of information pertaining to: demographics; antenatal, obstetric and medical history; reason for hospital admission; underlying causes for critical illness; reasons for ITU transfer; delays in care; support received on ITU; obstetric interventions; length of stay (LOS) and organ dysfunction.

There were 24 admissions to ITU: 16 postnatally and 8 antenatally. All but 1 patient survived to discharge. Sepsis (11, 46%), predominantly from bacterial pneumonia (2) and H1N1 influenza (4), was the commonest cause for critical illness, followed by postpartum haemorrhage, PPH (9, 38%). For these groups, mean LOS on ITU were 8.8 [1-28] and 1.5 [1-2] days, respectively.

Chest sepsis patients were all recent immigrants from the Indian subcontinent. Significant delays in recognition of deterioration were found in 2 cases. One remained on the ward for 5 days with vague coryzal symptoms before developing profound hypoxia and septic shock, with H1N1 not considered until transfer to ITU, whereupon antivirals were commenced and the diagnosis confirmed. The other showed signs of severe sepsis with bacterial pneumonia for 12 hours before senior medical input was requested.

The most prevalent risk factors for bleeding in PPH patients were recent Caesarean or instrumental delivery (8, 89%) and placenta praevia (4, 44%), all clearly recognized prior to ITU admission. 2 patients underwent Caesarean hysterectomy, with the remainder requiring more conservative haemostatic therapies. No care delays were found.

My presentation at this international conference will help to raise awareness amongst maternity healthcare professionals of the potential obstetric and non-obstetric causes for maternal critical illness. Whilst traditional causes of severe maternal illness (pre-eclampsia and PPH) are being managed better, recognition and treatment of severe sepsis have been shown to be suboptimal. This is supported by recent findings of the Centre for Maternal and Child Enquiries and the Intensive Care National Audit and Research Centre, as well as comparison with previous internal data. Pregnant

women have relatively depressed immunological function and are therefore markedly vulnerable to sepsis.

I will also emphasize that, as with critically ill patients from any specialty, early recognition of deterioration, appropriate escalation and prompt transfer of care are vital. Effective multidisciplinary communication between obstetrician, anaesthetist, midwives and other specialists is a prerequisite to this. I will encourage better training of all staff involved in obstetrics in appropriate use of early warning systems to minimize delays in care. Equally, pre-admission risk factors, including socioeconomic status and geographic patterns of disease, must be considered and specialist medical input sought antenatally where necessary.

Furthermore, this conference will benefit me personally as I have the opportunity to receive recognition of my work from a varied audience of esteemed academics and clinicians. This will be a good platform to learn from and exchange ideas with senior colleagues. I am a surgical trainee with a keen interest in critically ill and major trauma patients from all backgrounds and will certainly use these lessons to improve and inform my future clinical practice.