

Majority of stillbirth cases remain unexplained, post mortem investigation needs to be refined

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Analysis by a Great Ormond Street Hospital (GOSH) led team looking at the effectiveness of different elements of the post mortem process shows that, despite full standard investigation, in the majority of cases of stillbirth the cause remains unknown. The papers highlight the need for further research to improve post mortem techniques to better detect a cause of death.

The findings from the research, funded by the stillbirth and neonatal death charity Sands, are highlighted in a collection of six papers published in the journal *Ultrasound in Obstetrics and Gynecology*. The series of articles are significant as they challenge the accepted thinking on the diagnosis and causes of stillbirth and earlier deaths in the womb from 12 to 24 weeks, and the value of specific elements of the traditional post mortem process.

Post mortem examinations are traditionally considered the best way of working out how a person has died. The examination involves several different elements, and developments in scanning techniques over recent years means that more information can now be gathered by less invasive approaches.

GOSH consultant paediatric pathologist Professor Neil Sebire and colleagues have now carried out a detailed analysis of findings from a large number of post mortem examinations investigating stillbirth and

earlier deaths in the womb to see which aspects of the examinations provide the most information about why the baby had died.

The team reviewed the value of the autopsy and examination of tissue samples under the microscope, as well as the effectiveness of analysing the placenta and reviewing case notes for determining cause of stillbirths and earlier intrauterine deaths in over 1,000 cases. They found that clinical review identified the cause of death in about 20% of cases, with placental examination providing a cause in about another 20%, whilst carrying out invasive post mortem examination identified the cause of death in only a small percentage of cases.

Professor Neil Sebire, GOSH consultant paediatric pathologist and lead researcher, said: "Overall, post mortem examination remains the most effective way of determining how a person has died. However, this research highlights that, in the case of stillbirths, analysing information such as the clinical circumstances and examination of the placenta, without the use of invasive techniques, allows us to get almost as much information. The problem is that using current methods, even including full autopsy, we are still often not able to find out why the baby has died. It's therefore vitally important that we advance better ways of properly investigating these cases by developing new, more refined techniques. This will ensure we can support families in the best possible way."

In addition to this finding, the papers also suggest that the importance of having an apparently small baby as a risk factor for stillbirth may have been overestimated. In many cases, the stillbirth may have actually occurred when the baby was normal in size but weight loss occurs after death. While having a small baby in utero is certainly linked to increased stillbirth risk, this finding challenges the likely impact of identifying small babies to prevent stillbirth.

Professor Basky Thilaganathan, Editor in Chief of Ultrasound in

Obstetrics & Gynecology (UOG), said: "Sebire and colleagues produce convincing data to demonstrate that fetal body weight decreases substantially between intrauterine demise and postnatal weight assessment. This suggests that the majority of stillbirths considered to be small for gestation by birth weight, were likely to have been appropriately sized at the time of death. This finding questions the fundamental rationale and potential effectiveness of current health policy that is solely focused on the detection and elective birth of small fetuses to reduce the risk of [stillbirth](#)."

Clea Harmer, Chief Executive of Sands, said: "When a baby dies before birth, the most pressing question for parents is why? This study reveals how much we can expect to learn from the way post mortems are done today and highlights just how many gaps there are in our knowledge. These gaps won't close without continued and expanded funding for research, and access to good-quality pathology services for all parents when their baby dies.

"We are pleased to have been able to fund such an important study with money raised from bereaved parents themselves who remain determined that other families should not suffer as they have done."

Professor Neil Sebire's work is supported by Great Ormond Street Hospital Children's Charity. The project is one of over 1000 being carried out at Great Ormond Street Hospital and the UCL Great Ormond Street Institute of Child Health as part of their research programme.

More information: J. Man et al, Stillbirth and intrauterine fetal death: factors affecting determination of cause of death at autopsy, *Ultrasound in Obstetrics & Gynecology* (2016). [DOI: 10.1002/uog.16016](https://doi.org/10.1002/uog.16016)

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