General Health & Hospital Admissions in Children Born after ART: A Population Based Linkage Study

Introduction: Since its invention in 1978 in the UK, the number and proportion of children born after assisted reproductive technology (ART) has increased annually. It is estimated that currently over 4 million children worldwide and approximately 2% of children in the UK are born after ART. Whilst ART has benefitted millions, this rising usage accentuates the need for investigation of potential health threats to ART conceived children and their mothers. Specific concerns about the health of children born after ART include multiple births; prematurity; congenital malformations; cerebral palsy; general health, other conditions, and hospital admissions; and mortality. However, the evidence shows that many aspects of general health have not been adequately investigated in children born after ART, and potential risks remain unproven. Additionally, the few proven risks, such as multiple births, preterm delivery and low birth weight, require further investigation to quantify and characterise their impact on UK children.

Study aim: This retrospective UK population based cohort study aims to investigate hospital admissions and diagnoses made in children born after assisted reproduction.

This will be achieved by linking data from the Human Fertilization and Embryology Authority (HFEA) database to the Hospital Episodes Statistics (HES). Given the paucity of data on children but relative abundance of data on their mothers on the HFEA database, this link will be made via the Office of National Statistics birth records. Rates of hospital admissions and of specific diagnoses in the 'exposed' cohort of children born after assisted reproduction will be compared with rates in a control cohort matched for age and sex. Additionally, comparisons will also be made with another control cohort consisting of their spontaneously conceived siblings, identified from the linkage process.

Several health outcomes such as complications associated with prematurity, cerebral palsy, congenital malformations, asthma, allergic diseases, and developmental delays will be examined.

Ethics and Research Governance: Data linkage is the least intrusive, scientifically robust and most efficient way to investigate child health outcomes for children born after ART. However, population based linkage requires the use of identifiable data without consent. Therefore, in lieu of patient consent, this research group (and associated organisations) have taken steps in the form of various ethical and legal approvals to ensure that this study is acceptable to patients.