P061

P061 -Causes and co-morbidities for e-alerts for acute kidney injury in pregnancy

Dr Rouvick Gama[1], Dr Mahua Bhaduri[1], Katherine Clark[1], Kelly Wright[1], Dr Nick Kametas[1], Dr Royce Vincent[1], Dr Satish Jayawardene[1], Dr Kate Kate Bramham[1]
[1]King's College Hospital NHS Trust, London, United Kingdom

Introduction

Acute kidney injury (AKI) in pregnancy (Pr-AKI), although rare, remains an important cause of maternal and fetal morbidity and mortality. There has been a worldwide decrease in rates of Pr-AKI; however, in high-income countries, e.g. USA and Canada, a recent increase in incidence of AKI requiring renal replacement or reported through hospital coding has been reported. Risk factors such as advanced maternal age, hypertension and chronic kidney disease (CKD) are thought to contribute to this increased incidence, but risk factors associated with AKI categorised according to Kidney Disease Improving Global Outcomes (KDIGO) criteria have not been described.

Aims

To investigate the incidence, gestation and risk factors associated with Pr-AKI stages defined by KDIGO criteria in a tertiary referral obstetric unit.

Method

Data were extracted from maternity and laboratory databases (October 2016 to September 2018) at an inner-city teaching hospital. Women receiving obstetric care were identified and AKI stages were generated using the NHS England algorithm. Aetiologies of AKI, timing according to delivery, presence of risk factors (chronic and pregnancy-induced hypertension, diabetes mellitus, chronic kidney disease (CKD), cardiac disease, obesity and caesarean section) were extracted by two investigators. Differences between stages of AKI were compared by Fisher's exact tests.

Results

There were 279 (2.5%) out of 11,073 women with Pr-AKI identified by electronic alert (e-Alert) including 215 (77%) stage 1, 46 (16%) stage 2 and 18 (6%) stage 3. 247 (88.5%) of e-Alerts occurred in inpatients and 34 (11.5%) outpatients. Median maternal age at time of AKI was 33 years (IQR 30, 36 years), and the majority of patients were nulliparous (n=183; 65.6%).

Most episodes of Pr-AKI occurred intra-partum (n=132; 47.2%) and post-partum (n=103; 36.9%). Common causes included infection (n=135; 48%), pre-eclampsia (n=73; 26%) and haemorrhage (n=69; 25%). Women with AKI Stage 3 were more likely to have haemorrhage than Stages 1 or 2 ($p<0.05$). In 86 women (31%) more than one cause was identified (2 causes, n=75 (27%); ≥3 causes, n=11 (3%)).

Risk factors associated with Pr-AKI included caesarean section (n=152; 54.5%), hypertension (n= 152; 54.5% (pregnancy-induced (n=58; 21%); chronic (n=25; 9.0%) and pre-eclampsia (n=69; 25%)), obesity (n=85; 30.5%), diabetes mellitus (n=42; 15.1%), CKD (n=15; 7%) and cardiac disease (n=3; 1%). Women with AKI

stage 3 were more likely to have been delivered by caesarean than stages 1 or 2 ($p<0.05$). More than half of women (n=152; 54.5%) had two or more risk factors; 38 (13.6%) women had no risk factors.

Conclusion

Most episodes of Pr-AKI occurred during hospital admission either intra-partum or postpartum and occurred in women with at least two risk factors. Common causes of Pr-AKI were infection, pre-eclampsia and haemorrhage. Caesarean section and hypertension were the most prevalent risk factors associated with Pr-AKI. Recognition of risk factors and causes of Pr-AKI is likely to improve identification of women requiring closer surveillance during pregnancy and delivery to allow prompt intervention to reduce the incidence of Pr-AKI. Quantification of risk by comparison with women without Pr-AKI is needed.