NEONATAL MEDICAL CONDITIONS

9. ANTENATAL RENAL DILATATION

Date Issued: August 2011
Date Revised: March 2014
Review Date: August 2014
Authorised by: NCCU
Review Team: NCCU

9. Antenatal Renal Dilatation
Neonatal Postnatal
Clinical Guidelines
King Edward Memorial Hospital
Perth Western Australia

BACKGROUND

Abnormalities of the foetal genito-urinary system are identified by ante-natal ultrasonography in 0.5% of pregnancies[1]. Antenatal renal pelvis dilatation (RPD) affects approximately 1% of foetuses[2]. Elevated RPD indicating the presence of hydronephrosis is the most common urinary tract finding on routine ante-natal scanning and clinical sequelae may range from no functional disturbance, through to acute and chronic renal failure, depending on the underlying cause. Whilst many instances of antenatally diagnosed hydronephrosis are associated with a normal renal prognosis, underlying abnormalities such as spina bifida, posterior urethral valves, obstruction at the pelvi-ureteric junction, duplex system and other congenital anomalies may have significant implications with respect to renal functional outcomes. Foetal RPD measures of >15 mm have demonstrated an association with renal pathology such as urinary tract obstruction[2]. This diagnosis implies a need for early surgical intervention in most cases. The presence of unexpected renal fluid collections on ultrasound (e.g. urinoma, renal cysts, distended bladder should prompt consideration of a co-existent renal tract anomaly[3].

Defining the extent and severity of hydronephrosis identified on antenatal ultrasound has been confounded by physiological variation in growth occurring normally during gestation, and consequent to differences in definition and diagnostic criteria. The most commonly used method for diagnosing prenatal hydronephrosis is the assessment of the antero-posterior diameter of the renal pelvis[2]. Unfortunately, opinion varies regarding which degrees of renal dilatation require investigation with ultrasound or other modalities in the post-natal period. The use of antibiotic prophylaxis, surgical intervention for (e.g.) vesico-ureteric reflux and long-term monitoring strategies are also the focus of debate. Meta-analysis of outcomes for mild – moderate RPD have demonstrated an increasing risk of obstruction / VUR with increasing mean foetal pelvis diameter increased from 5mm to 15mm[2]. Other meta-analyses have indicated that milder degrees of pelvis dilatation were more likely to stabilise or improve[4], while moderate to severe cases present a significant risk of association with an underlying pathology[5].

MANAGEMENT OF INFANTS WITH MILD ANTENATAL RPD

Infants with a renal pelvis diameter of **5-10mm** on ultrasound are considered to have mild renal dilatation. Infants in whom mild renal dilatation is identified and is persistent on antenatal scan should be managed as follows:

1. Refer to PMH Nephrology Unit using referral template (See Forms).
2. Commence Bactrim prophylaxis, 1mL orally daily. To continue until renal US and review.
3. Renal Unit Secretary will arrange ultrasound and outpatient appointment and this will be sent to parents. These may not necessarily occur on the same day.

MANAGEMENT OF INFANTS WITH MODERATE-SEVERE ANTENATAL RPD

Infants with a renal pelvis diameter of **>10mm** on ultrasound are considered to have moderate to severe (>15mm) renal pelvis dilatation. Infants in whom moderate or severe dilatation is present should be managed as follows:

1. Ring the on-call Consultant Nephrologist at PMH via Switchboard.
2. Commence Bactrim prophylaxis, 1mL orally daily. To continue until renal US and review.
3. Complete renal follow-up referral template and/or arrange for other investigations as requested by the Nephrologist. Urgent renal ultrasounds can generally be obtained at short notice at KEMH if discussed with the radiologist and ultrasonographer on call *after* discussion with the PMH nephrologist or PNW paediatric consultant.

MANAGEMENT OF INFANTS WITH OTHER RENAL ANOMALIES

Infants in whom other renal tract anomalies have been identified in utero, should be assessed clinically and discussed with the paediatric consultant on call for post-natal wards prior to consulting Renal or other specialties.

ANTIBIOTIC PROPHYLAXIS FOR RENAL TRACT DILATATION OR ANOMALIES

Antibiotic prophylaxis should be initiated for all infants with renal pelvis dilatation, pending outpatient ultrasound and clinical review by PMH Nephrology staff. **Bactrim (co-trimoxazole) 1mL orally daily** should be used unless specifically ordered otherwise by the paediatric / renal consultant. The medication should be continued after discharge until renal review, at which time a decision will be made regarding its continuation.

REFERENCES

1. Fefer S, Ellsworth P. Prenatal hydronephrosis. Pediatr. Clin. North Am. 2006, 53. pp 429-447, vii.
2. Hothi DK, Wade AS, Gilbert R, Winyard PJD. Mild foetal renal pelvis dilatation - Much ado about nothing? Clin J Am Soc Nephrol. 2009, 4. pp 168-177.
3. Rao PK, Palmar JS. Prenatal and postnatal management of hydronephrosis. 2009. The Scientific World Journal. 2009, 9. pp 606-614.
4. Sidhu G, Beyene J, Rosenblum ND. Outcome of isolated antenatal hydronephrosis : A systematic review and meta-analysis. Pediatr Nephrol. 2006, 21. pp 218-224.
5. Lee RS, Cendron M, Kinnamon DD, Nguyen HT. Antenatal hydronephrosis as a predictor of postnatal outcome: A meta-analysis. Pediatrics. 2006, 118. pp 586-593.