**Tolvaptan for the treatment of autosomal dominant polycystic kidney disease within a multi-disciplinary team clinic setting - a North East experience**

**Background**

Autosomal dominant polycystic kidney disease (ADPKD) is the commonest inherited cause of renal failure. Until recently, there have been no specific disease modifying drugs for this disease, aside from supportive care and blood pressure control. Tolvaptan, a vasopressin V2 receptor antagonist, has been shown to benefit patients with ADPKD and was approved by NICE in October 2015 (TA358) for the treatment of patients with evidence of rapidly progressive disease. A renal association UK working party provided guidance for the use of tolvaptan in the real world. Here we describe our experience of identification of patients and initiation and monitoring of treatment with tolvaptan in ADPKD patients.

**Methods**

Using the Clinical Vision database, a cohort of ADPKD patients who attended Newcastle upon Tyne NHS Foundation Trust Hospitals were identified. Patients were grouped in terms of eGFR values <90 and >30 mL/min/1.73m2. Changes in eGFR values over time (1-5 years) were calculated. Renal volumes were estimated using a combination of renal USS and renal MRI. Genetic diagnoses were obtained wherever possible. Tolvaptan was initiated and titrated up within the context of a multi-disciplinary team (MDT) clinic with a renal pharmacist and a renal physician. Reasons for discontinuation/breaks in therapy were recorded from March 2016 when the first patient was initiated on tolvaptan until January 2018.

**Results**

177 ADPKD patients were identified from Clinical Vision, 132 of those had eGFR values <90 and >30 mL/min/1.73m2. Overall, 38 patients initiated therapy locally with 1 additional patient transferred from out of region. 12 other patients were offered tolvaptan however declined due to personal / medical reasons. 4 patients were already enrolled in tolvaptan clinical trials. Prior to therapy, DNA samples were collected from 30 patients with 4 confirmed genotypes. Kidney sizes were measured by renal ultrasound scan in 23 patients and MRI scan in 12 patients; 5 patients had scans out of region in local hospitals. The average eGFR on commencing tolvaptan was 55mL/min/1.73m2. Currently, 22 patients are maintained on top dose of tolvaptan, 4 on medium dose (1 still titrating), and 3 on low dose (1 still titrating). 9 patients have stopped therapy in total (23% dropout rate), with a further 6 patients requiring dose reduction due to intolerance. . Reasons for discontinuation of therapy were due to polyuria/nocturia and associated fatigue or conflict with lifestyle. We also observed incidences of deranged LFTs, gout exacerbation, and skin reactions requiring suspension / break in therapy as stated in the product literature.

**Conclusion**

We describe a cohort of ADPKD patients who clinically had evidence of rapidly progressive disease and were commenced on tolvaptan. The therapy had predictable side effects which were manageable. 56% of patients achieved maximum maintenance dose of tolvaptan and 13% are currently maintained on reduced doses with no immediate plans to up-titrate. We conclude that a MDT clinic for ADPKD patients is the ideal environment for the initiation and monitoring of tolvaptan therapy.