Prescribing tolvaptan for autosomal dominant polycystic kidney disease within the general nephrology clinic setting

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Introduction

- Approved by NICE in 2015, tolvaptan (Jinarc®) is the first commercially available drug shown to improve rate of decline in renal function in patients with ADPKD, the most common genetic cause of chronic kidney disease (CKD)
- Patients commencing tolvaptan require regular follow-up and frequent monitoring. Within our region and beyond, this often occurs within dedicated consultant or multidisciplinary ADPKD or genetics clinics.
- Here we present the experience of managing patients with ADPKD on tolvaptan within an undifferentiated general nephrology clinic in a Trust that is one of the top ten users of tolvaptan in the UK (Figure 1)

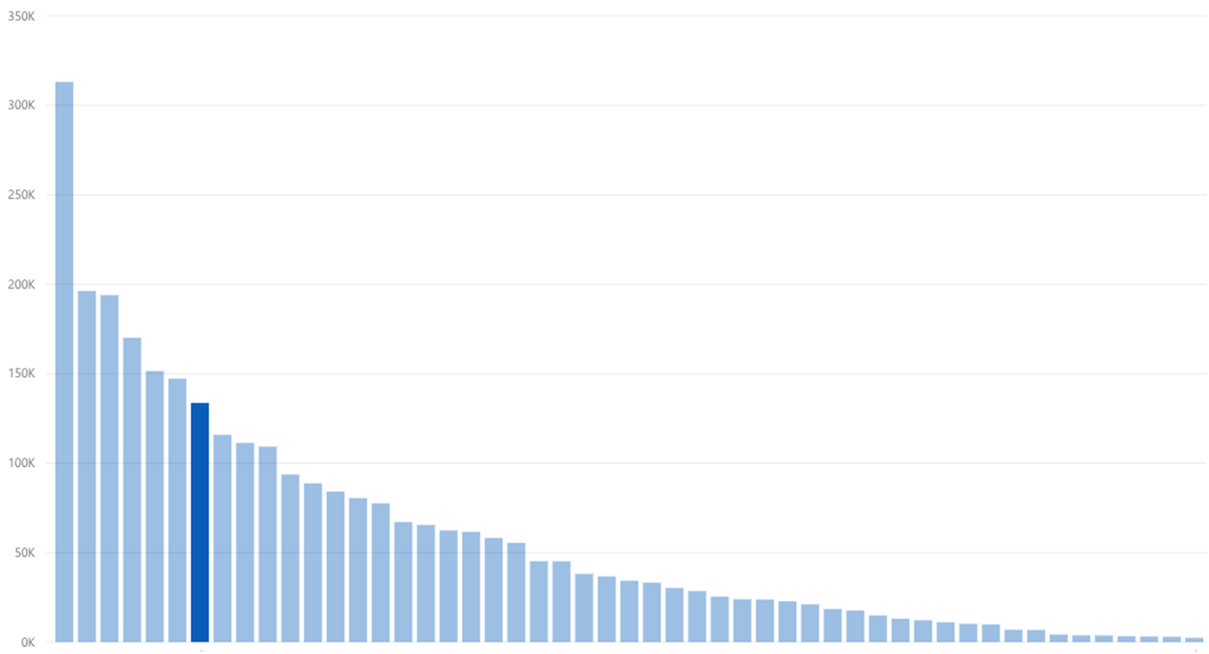

Figure 1 – graph showing NHS trusts by purchase rate per 100000 for tolvaptan (Jinarc®). Our trust highlighted in dark blue.

Methods

- A search was undertaken using the Vital Data database to identify all patients who had been prescribed tolvaptan for ADPKD at our Trust. Records were then retrospectively analysed.
- Renal function measurements were recorded at 1, 2, 3, 6, 9 and 12 months post -initiation of tolvaptan, as well as data on the maximum tolerated dose, frequency of liver function test (LFT) monitoring and whether tolvaptan was discontinued.

Results

Data from 19 patients currently taking tolvaptan was identified for evaluation. Baseline characteristics are shown in table 1.

16 patients (84%) achieved the maximum tolvaptan dose (90mg/30mg).

CHARACTERISTIC	FREQUENCY (PERCENTAGE)
Total number of patients	19
Male	11 (58%)
Median age (IQR)	43years (36.5 - 48.5)
MEDICAL HISTORY	
Hypertension	18 (95%)
Kidney pain	5 (26%)
Nephrolithiasis	2 (11%)
Urinary tract infections	1 (5%)
Anaemia	1 (5%)
Proteinuria	1 (5%)
CKD STAGE AT BASELINE	
CKD stage 2	6 (32%)
CKD stage 3a	2 (11%)
CKD stage 3b	11 (58%)
MEDIAN eGFR AT BASELINE	43 mL/min/1.73m^2 (36-62.5)

Table 1 – baseline characteristics of patients taking tolvaptan for ADPKD at our Trust

Results—Renal Function

- 16 patients (84%) had subsequent renal function measurements up to 12 months post-commencement (see Figure 2).
- After the 12-month follow up period, the median eGFR in our cohort was 35.5 mL/min/1.73m2 (IQR 32.5 – 47.25), equating to a decline in renal function of -7.5 mL/min/1.73m2.
- Six patients had an improvement in renal function, including 4 patients (66%) with CKD stage 2 at baseline.
- The rate of decline in renal function was greater than 10% over 12 months in seven patients, all of whom had CKD stage 3b at commencement.

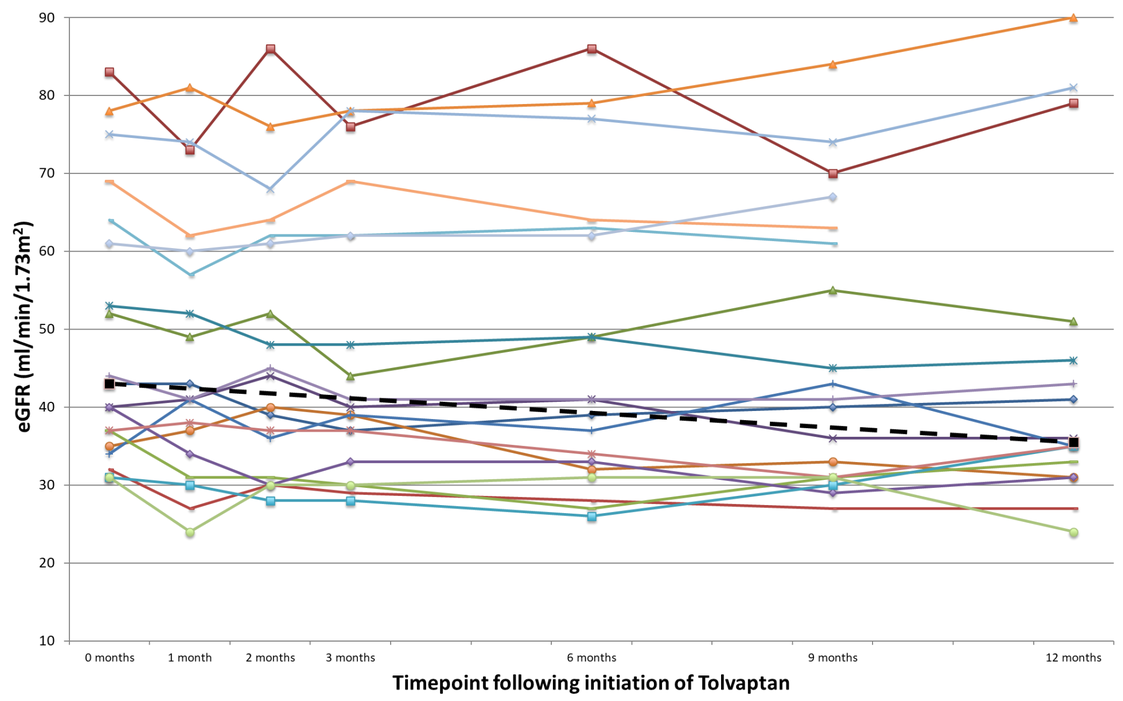

Figure 2 – measured change in eGFR of patients taking tolvaptan for ADPKD over 12 months. Filled lines represent eGFR change for each patient. Dotted line represents median eGFR change from initiation to 12 months

Monitoring and Side Effects

- Of the intended 289 monitoring LFTs across the cohort, 279 tests were performed (96.5%).
- Tolvaptan was discontinued in 2 patients: one due to side effects (polyuria and polydipsia) and the other due to deranged LFTs.

Conclusions

- 84% of patients were able to achieve the maximum dose of tolvaptan, compared to 55% in the TEMPO 3:4 trial1.
- We found an improvement in renal function at 12 months in 66% of those who commenced tolvaptan with a baseline eGFR of 60-90 mL/min/1.73m although numbers were small. Conversely, the greatest rates of decline were seen in patients commencing tolvaptan with CKD stage 3b.
- The majority of patients received LFT monitoring as per ERA guidelines2 (monthly for 18 months, three-monthly thereafter), with 96.5% of monitoring blood tests being done.
- Further analysis at 24 and 36 months will be essential in determining the longer-term outcomes in our cohort.

Patients prescribed tolvaptan for ADPKD may be safely and effectively managed within general nephrology clinics.

REFERENC
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2 RT Gansevoort, M Arici, T Benzing, et al. Recommendations for the use of tolvaptan in autosomal dominant polycystic kidney disease: a position statement on behalf of the ERA-EDTA Working Groups on Inherited Kidney Disorders and European Renal Best Practice, *Nephrology Dialysis Transplantation*, Volume 31, Issue 3, March 2016, 337–348, https://doi.org/10.1093/ndt/gfv456

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