EE683

Evaluation of the Healthcare Resource Use of Haemodialysis Patients with and without Pruritus in the UK

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BACKGROUND

- Chronic Kidney Disease (CKD) is a long-term condition that affects 10% of people in the UK (1).
- Kidney failure or end-stage renal disease often require dialysis that can result in reduced quality of life (1).
- Chronic Kidney Disease associated pruritus (CKD-aP) is a common condition affecting patients with CKD, however a lack of diagnostic guidelines and standardised severity scales provide a barrier for screening and diagnosis (2).
- It is estimated that 20% of CKD patients and 40% to 80% of end stage renal disease patients experience pruritus, although the condition is commonly underreported and therefore also undertreated (3,4).
- Currently available treatments for CKD-aP are often ineffective. This is in part due to a lack of consensus as to the underlying cause, although metabolic anomalies, opioid receptor imbalance and mast cell activity are believed to play central roles (4).
- The rationale behind this study centres around a lack of UK-specific studies using real-world data to evaluate resource use and costs associated with treating CKD-aP patients on haemodialysis (HD) within the UK.

METHODS

- Patients were selected from the Clinical Practice Research Datalink (CPRD) GOLD and Aurum datasets linked to Hospital Episode Statistics (HES).
- Patients with a first record of pruritus following chronic HD were selected and defined as a ‘case’, along with a reference group of propensity score matched CKD patients on chronic HD without a record of pruritus which were defined as ‘controls’.
- A case’s index date was the date of first recorded diagnosis of pruritus following start of dialysis. The control’s index date was assigned as the number of days following dialysis initiation of their respective case.
- All patients had received chronic HD (≥ 90 days of dialysis with <90 days break between records).
- Healthcare contacts and associated costs (UK 2019/2020 prices) were calculated per person year (PPY) for general practice (GP) contacts, inpatient admissions, outpatient appointments, accident and emergency (A&E) attendances and prescriptions issued in primary care.
- Generalised linear models were constructed to compare contacts (Poisson) and costs (Gamma) with incident rate ratios (IRR) and cost rate ratios (CRR) being presented along with 95% confidence intervals (CI) and p-values.

RESULTS

Baseline Characteristics

- 5,296 patients were included in the analysis (n=2,648, cases and controls).
- There were 2,743 CKD patients receiving HD with pruritus that matched the inclusion criteria of the study. Of those patients, 2,648 (96.5%) cases were propensity score matched to CKD HD control patients without pruritus.
- The mean age of both the cases and controls was 66 years, and the majority were female (61%).
- There was a significant difference in the mean duration of HD during the study with cases having 577 days compared to 498 in the controls.

Table 1: Baseline Characteristics of included patients

Characteristic	Control population N = 2,648	Pruritus population N = 2,648	p-value
Patients, N (%)			
Male	1,035 (39%)	1,040 (39%)	0.9
Female	1,613 (61%)	1,608 (61%)	
Age (years)			
Mean (SD)	66 (15)	66 (14)	0.4
Median (IQR)	69 (56 - 77)	69 (57 - 77)	
Minimum (Maximum)	18 (94)	18 (94)	
HD duration in study (days)			
Mean (SD)	498 (481)	577 (579)	<0.001
Median (IQR)	352 (168 - 657)	394 (170 - 777)	
Minimum (Maximum)	4 (4,644)	0 (5,210)	

Healthcare Resource Use

- Cases had a significantly higher rate of GP visits, outpatient appointments, A&E appointments, number of prescriptions and hospital admissions PPY compared to controls in each of the follow up periods.
- The higher inpatient resource use is driven by a greater number of admissions associated with dialysis in patients with pruritus.
- Cases had a significantly greater number of prescriptions for phosphate binder medication.

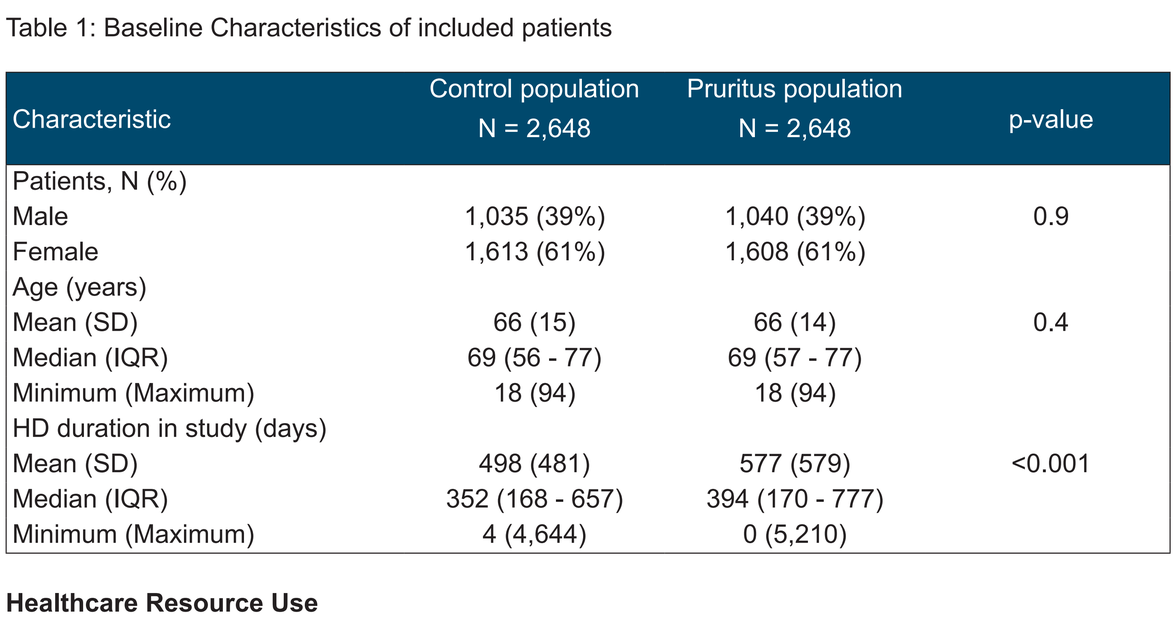

Figure 1: Healthcare resource use contacts per person per year.

- Cases had a significantly higher rate of GP cost, outpatient cost, A&E cost, cost of prescriptions and hospital admissions costs PPY compared to controls in each of the follow up periods.
- The higher inpatient cost is driven by a greater number of admissions associated with dialysis in patients with pruritus.
- Cases had a significantly greater cost of prescriptions for phosphate binder medication than their matched controls.

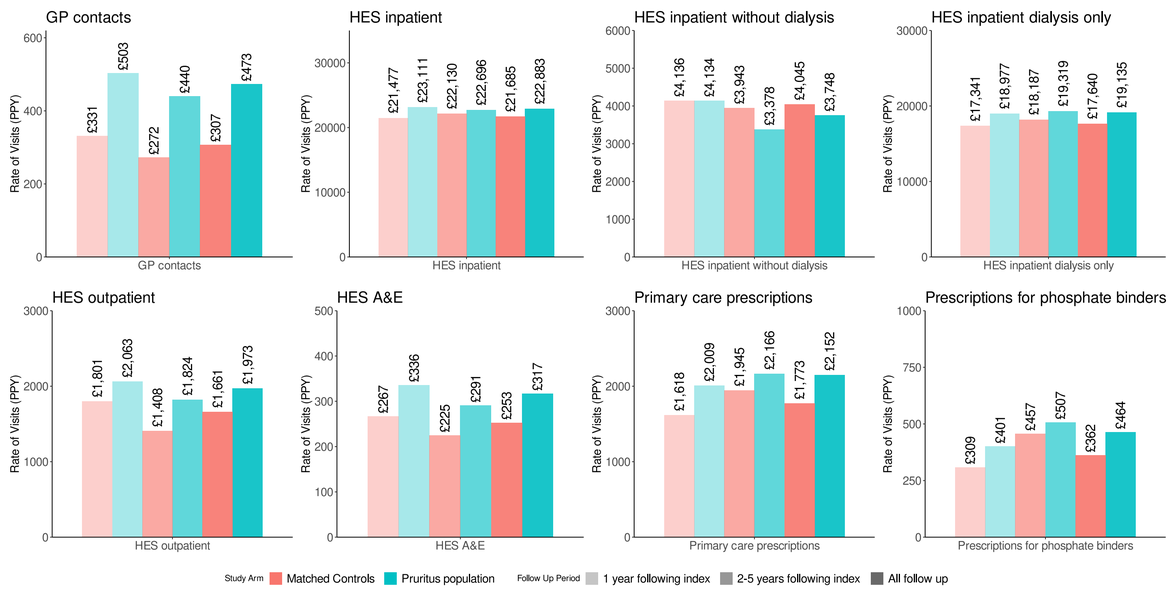

Figure 2: Healthcare resource use costs per person per year.

Generalised Linear Model

- Cases had a significant increase in contacts compared to controls for GP visits, outpatient appointments, A&E appointments, number of prescriptions and hospital admissions for all follow up.
- Inpatient excluding dialysis showed an IRR of less than one, indicating a significant decrease in contacts for cases compared to controls.
- All other inpatient appointments produced a significant IRR of greater than 1.

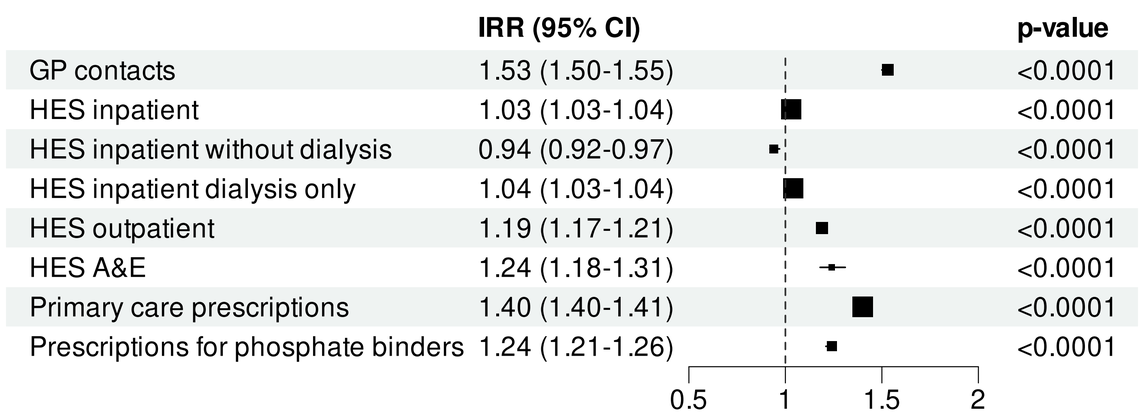

Figure 3: Generalised linear model on contacts for all follow up.

- Regarding GP cost, outpatient cost, A&E cost, cost of prescriptions and hospital admissions cost, there was a significant difference between the cost PPY between cases and controls.
- Inpatient costs showed a significant increase for the inpatient overall and inpatient dialysis only cohort. The CRR for inpatient without dialysis was not significant.

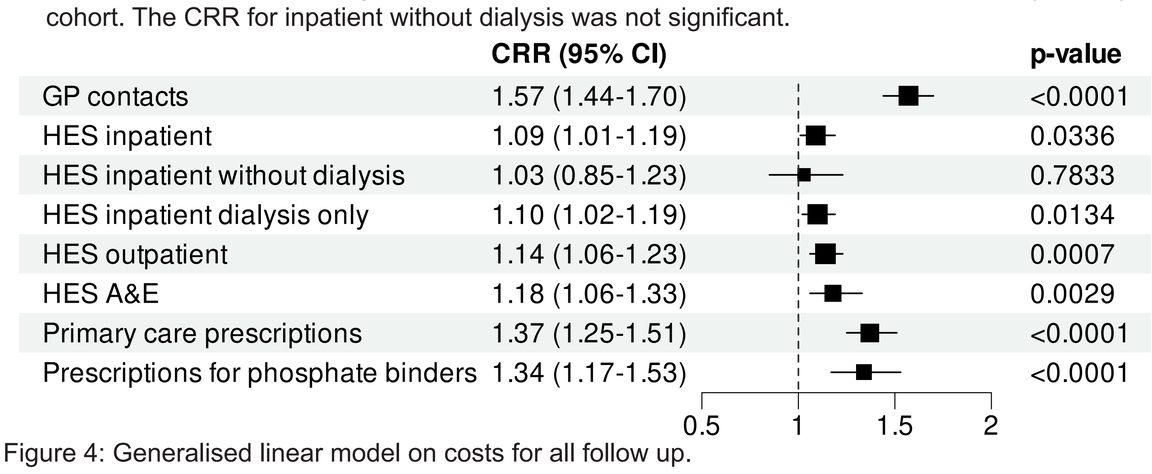

Figure 4: Generalised linear model on costs for all follow up.

CONCLUSION

- The findings in this study outline that CKD patients diagnosed with pruritus had a significantly higher number of contacts and costs PPY for GP visits, inpatient admissions, outpatient appointments, A&E visits and prescriptions.
- There were an additional 14.1 contacts per patient year across primary and secondary care combined, at an additional cost of £1,740 per patient year, and an additional 46.50 prescription items at a cost of £379 per patient year.
- A limitation of the study is the potential for bias in the control population’s hospitalisation rates. As cases were identified through pruritus diagnosis in the CPRD dataset, patients with a pruritus diagnosis had to be out of hospital at time of diagnosis, whereas controls could be hospitalised during their index date due to the dummy index date assigned.
- Due to the study period, patients may have zero admissions able to be costed due to the inpatient start and end date falling outside of the study period for patients with a long hospital stay. This may lead to an underestimation of the cost of treatment for those patients, however the number affected is likely to be minimal.

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