PUK8

REtrospective study on ItaliaN ADPKD disease management cost (REINA)

Preliminary results

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INTRODUCTION

ADPKD (Autosomal Dominant Polycystic Kidney Disease) is the most common genetic kidney disease. It is associated with the development of end-stage kidney disease requiring dialysis or transplantation and it is caused by PKD1 and PKD2 genes mutations. Recent studies have demonstrated that patients with ADPKD have a worsening in quality of life and a burden of disease similar to cancer patients [1,2].

OBJECTIVE

The aim of this study was to estimate the burden of ADPKD in Italy, analyzing the healthcare costs according to progression stage of chronic kidney disease (CKD). The primary outcome was the average annual cost per patient with ADPKD in Italy. The secondary outcome was represented by the average annual cost per patient with ADPKD for CKD1, CKD2, CKD3, CKD4, CKD5 (not in dialysis), dialysis and post-transplant stage. The perspective of the Italian Healthcare system was adopted, therefore only direct medical costs were considered in the analysis

METHODS

This retrospective, observational study was carried out by gathering data through a CRF (Case Report Form) across six hospitals in Italy. We estimated costs associated with polycystic kidney disease (ADPKD). On the basis of identified cost drivers, the analysis was performed using the Activity Based Costing method (REF). Resource consumptions were collected for each patient based on the outpatients and/or hospital admission notes during the period 2012-2015. Data were collected on outpatient visits, laboratory biochemical and genetic tests, diagnostic and therapeutic procedures, drug treatments, full hospitalization or day hospital (DH) regimen attributable to ADPKD and comorbidities-related. The costs of consumed resources were calculated using national inpatient and outpatient hospital tariffs, as per last update on 18 October 2012 Ministerial Decree. Outpatient specialist visits and diagnostic tests were quantified using outpatient tariffs while full hospitalizations and DHs were using Diagnosis Related Group (DRG) system, currently in use in Italy, applied as a proxy of the costs for kidney transplant and secondary diagnoses. Drug therapy was estimated by using retail or ex-factory price of each drug respectively according to reimbursement class used in Italy (A for outpatient drugs and H for drugs dispensed only in the hospital sector). Costs are expressed in € (2017).

RESULTS

191 patients were enrolled. The preliminary analysis estimated a mean total cost associated with ADPKD management equal to € 7,921 (Tab. 1).

The mean annual cost of patients under dialysis was € 27,353, followed by post-trasplantation and CKD V patients (respectively € 22,793 and € 12,658), CKD IV (€ 7,320) and finally CKD III, CKD II, CKD I (respectively € 723.75, € 674.5 and € 159.7). Costs increased with disease progression, except for post-transplant stage. The outpatient specialist care (including dialysis) represented the highest impact on total costs, followed by pharmacological therapies and hospitalizations (Tab. 2). Post-transplant stage presented a lower cost compared to dialysis, as post-transplanted patients generally do not perform dialysis. Six patients did not perform transplant during the period 2012-15, and therefore the transplantation costs were not allocated (cod. DRG 302: € 33,162).

Tab. 1 Average annual cost per patient with ADPKD divided according to CKD stage

	ADPKD (191 pts)	CKD1 (33 pts)	CKD2 (29 pts)	CKD3A (19 pts)	CKD3B (15 pts)	CKD4 (27 pts)	CKD5 (26 pts)	Dialysis (22 pts)	Post-transplant (20 pts)*
Average	€ 7,921	€ 159.7	€ 674.5	€ 458.3	€ 989.29	€ 7,320	€12,658	€ 27,353	€ 22,793
Min value	€ 10.96	€ 10.96	€ 25.27	€ 48.60	€ 153.28	€ 164.80	€171.01	€ 10,688	€ 11,506
Max value	€ 74,056	€ 475.4	€11,026	€ 2,890.4	€ 8,413	€ 35,001	€53,097	€ 74,056	€ 48,583
SD	€ 12,479	€ 112.1	€ 2,015	€ 626.05	€ 2,084	€ 8,741	€13,320	€ 13,138	€ 12,078

*Transplantation performed during observation period (2012-15)

Tab. 2 Costs composition per patient with ADPKD and for each CKD stage

%	Drugs	Outpatient	Admissions
ADPKD	22.46%	53.09%	24.45%
CKD 1	16.55%	78.67%	4.78%
CKD 2	46.41%	16.65%	36.94%
CKD 3 A	36.34%	28.70%	34.96%
CKD 3 B	84.20%	9.61%	6.18%
CKD 4	28.05%	52.92%	19.03%
CKD 5	19.58%	64.32%	16.10%
Dialysis	13.69%	76.57%	9.74%
Post transplant	33.31%	4.39%	62.30%

CONCLUSIONS

This study underlines the relevant burden of Autosomal Dominant Polycystic Kidney Disease, especially in the end-stage, and implicitly the importance of slowing the disease progression, both from patient and NHS perspectives.

REFERENCES

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