REtrospective study on ItaliaN ADPKD disease management cost

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Background. The ADPKD (Autosomal Dominant Polycystic Kidney Disease) is the most common genetic kidney disease. It is associated to 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 only direct costs and evaluating 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.

Methods. This retrospective, observational study was carried out by gathering data through a CRF (Case Report Form) in six hospitals in Italy. We estimated costs associated with polycystic kidney disease (ADPKD). On the basis of identified cost drivers, the analysis has been performed using Activity Based Costing method. Resource consumptions were collected for each patient based on the outpatients and/or hospital admission notes during the period 2012-2015. The cost of the direct resources has been calculated from the perspective of the Italian National Health Service (NHS). Data have been collected on outpatient visits, laboratory biochemical and genetic tests, diagnostic and therapeutic procedures, drug treatments, hospitalization in ordinary or day hospital (DH) regimen attributable to the chronic kidney disease and comorbidities-related. The national tariffs defined by the list of charges for medical and outpatient services, as updated by 18 October 2012 Ministerial Decree, are used to estimate the cost of outpatient specialist visits and diagnostic tests. Costs of hospitalizations and DH are calculated according to the Diagnosis Related Group (DRG) system, currently in use, applied as a proxy of the costs for kidney transplant and secondary diagnoses. Drug therapy has been valorised through retail or ex-factory price of each drug, according to reimbursement class.

Results. A sample of 191 patients, with a mean age of 52.5 years, was considered in this evaluation. The analysis estimated a mean total cost associated with ADPKD management equal to € 7,921. Approximately 40% of management costs of the whole sample is related to patients in dialysis, followed by CKD V and post-transplant (about 20% each) patients, CKD IV (13.5%) and finally CKD I, CKD II, CKD III (about 1% each). Costs increased with the disease progression, except for post-transplant stage. This stage presented a lower cost compared to dialysis, as post-transplant patients generally do not perform dialysis and six patients did not perform transplant during the period 2012-15, and therefore the transplantation costs have not been allocated (cod. DRG 302: € 33,162). The outpatient specialist care (which includes dialysis) showed the highest impact on total costs, followed by drug therapies and hospitalizations.

Conclusion. The study has underlined 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.

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Key references

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