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Establishing and controlling chronic renal failure treatment costs. A pressing need

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INTRODUCTION

Chronic renal failure (CRF) is currently one of the main problems of public health in Western countries due to its high prevalence and high social and economic costs. From the data published in the last report of the *Registro Español de Enfermos Renales* (Spanish Registry of Renal Patients) for 2009,¹ we can see that around 48600 CRF patients (0.1%) are currently alive in Spain thanks to different methods of renal replacement therapy. This represents a prevalence of 1039 cases per million population (pmp), with a growth of 1.6% in the last year. Around 6000 patients start renal replacement therapy every year, with an incidence of 129 new patients pmp. Both of these figures are at the middle-upper end of the countries surrounding Spain. In Spain, incidence has remained stable for the last five years and prevalence has increased by 1.6% in the last year and a little higher in previous years; however, there are significant differences between the different Autonomous Communities of Spain. The Registry shows that 47% of CRF patients (23000 patients) are undergoing haemodialysis (HD), 6% (2350) peritoneal dialysis (PD) and 47% (23000) have a functioning kidney transplant (KT). There are also large differences in these figures between the different Autonomous Communities.

END-STAGE RENAL FAILURE TREATMENT COSTS IN SPAIN

Although the actual cost of CRF replacement therapy is unknown in Spain (there are large differences in the articles published),^{2,3} it is estimated that it makes up between 1.6% and 2.5% of total healthcare costs. Villa estimated the total

cost to be 1400 million Euros in a recent publication in *Nephrol Dial Transplant*: 73% of this cost was for HD, 6% for PD and 31% for KT.⁴ The annual increase in costs is also unknown, although the introduction of highly expensive new drugs in dialysis and transplantation, new solutions in PD, new HD and PD techniques and the tendency in recent years to increase the frequency of dialysis sessions in certain patients or to implement HD sessions daily, must have led to a large increase recently.

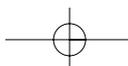
Public or reference hospitals (PH) provide approximately 40% of HD services in Spain and private hospitals that provide services for patients referred from the Spanish National Health System (PCNHS) provide 60% of HD. The hospitals also take on the care costs of all patient complications, hospitalisation, the execution and maintenance of the vascular access, and the administration of erythropoietin (EPO) and other drugs for all the patients being treated.

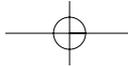
Some articles have been published in Spain with interesting data and conclusions with regard to CRF treatment costs, although not with the frequency that one would expect for such a costly issue. These articles are becoming more frequent at the present time: a period of crisis and cuts in the healthcare system. In this way, 16 articles on costs have been published in *NEFROLOGÍA* since 1994, three of them in the last few months.⁵⁻¹³

However, it does not seem as if this analysis has sparked much interest amongst nephrologists, as the subject of CRF treatment costs is notable for its absence in the Masters programmes, postgraduate certificate courses, general or monographic congresses or conferences, or in training for the speciality itself. Also, as Rodríguez Carmona already stated in 2007, it has hardly had any impact on our clinical practice.⁵

Healthcare planners, managers and administrators do not seem to prioritise improving efficiency in CRF treatment when planning and providing resources for treating CRF.

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We have two examples of this in the Autonomous Community of Madrid, where they chose to increase hospital haemodialysis (HHD), which is the least efficient method, creating macro-units in new hospitals. Another example is the differences in the rates for the same service in the agreements with private hospitals in the different Autonomous Communities. These differences can exceed 45% between some communities.

Analysis carried out on cost articles published and reports prepared by the Evaluation Agencies in Spain^{14,15} highlights how difficult it is to draw conclusions from studies based on theoretical models with different cost allocation regimes and methodologies. Furthermore, many of them are estimates, and/or studies that base their data and calculations on those provided in previous publications, some of which are old and/or are based on consultancy databases or the rates of the Autonomous Communities, which are not actual costs.

Meanwhile, although these are not actual costs, the studies comparing different techniques, especially in PD and HD outsourced to private hospitals, which have known rates justifying a large part of their costs, do seem to be more valuable. HHD is the hardest method to analyse given that each department and unit is managed separately, the number and type of techniques used and the different structural costs.

Considering the above mentioned limitations, the following deductions can be made from analysing articles and reports published in Spain, especially in the last few years, and the data of some publications from other countries^{16,17}:

KT is the most efficient therapeutic option and the cheapest from the second year. Furthermore, it offers the patients a higher quality of life. It is necessary to update the costs of some very old studies in Spain¹⁸⁻²⁰ due to the use of new immunosuppressive drugs with very high costs, the results with the current type of donations and the need to use other drugs in many patients, such as EPO and antiviral drugs. It is crucial that the actual costs of KT are known in the country where the transplants are performed so that the results and efficiency of the different transplant teams can be compared and resources optimised, among other reasons.

PD, in any of its forms, is a more economical therapeutic option than HHD.^{3,4} PD costs less than HD outsourced to a private hospital, according to current rates; however, it may have a higher cost in automatic peritoneal dialysis (APD) and when special, more expensive liquids are used for the exchanges. Moreover, these regimes are becoming increasingly more wide-spread in daily medical practice.

With regard to the costs of HD, HHD is the most expensive treatment method. It costs between 25% and 48% more than the rate for HD outsourced to private centres, according to different studies.^{2,4}

COMPARING AND ANALYSING THE COSTS OF HAEMODIALYSIS

The publication of the study by Parra Moncasi and other members of the Quality Management Group of the Spanish Society of Nephrology (S.E.N.) in this issue of the Journal,²¹ which is the reason for this Editorial comment, provides new interesting data on the costs of HD. It is a pioneering, prospective and descriptive study that was financed by public funds. It analysed for the first time in Spain the actual costs allocated using analytical accounting in six hospitals (two PH and four PCNHS).

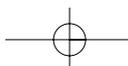
The article shows, in contrast to what had been previously thought in other publications,⁵ that there were no significant differences in age, time on dialysis, Charlson comorbidity index or dialysis techniques between the PH and the PCNHS. Clinical results and quality indicators were not analysed, which according to the authors will be looked at in a later study, although we can assume that they will be analysed in a similar way. It is worth remembering that a lot more PCNHS have external quality accreditation than PH do in Spain.

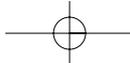
With the limitations that the authors themselves recognise, the study reported that the cost per session in PH was 30% higher than in PCNHS (€257 compared to €198). As the authors state, these differences are due to the higher staffing (67%) and consumables (83%) costs in PH. There are smaller differences in other items, such as drug consumption, maintenance management, etc., and others which are difficult to explain, such as the higher costs of outpatient pharmacy and transport in two of the PCNHS.

With regard to staffing costs, the differences are not due to higher wages in PH as shown in Table 4 of the article, which are equal or lower in overall wages as well as price per hour compared to PCNHS. They, therefore, must be explained by a less efficient organisation of the PH units and lower staff productivity rate (no. of patients seen to or sessions by each member of staff during their working day).

The productivity rate highlighted in the article using number of sessions/12 hours was 46% lower for doctors, 46% for nurses and 49% for nursing auxiliaries in PH. If we calculate the staff/session cost, productivity would also be lower in PH: 34% for doctors, 100% for nurses and 99% for nurse assistants.

These differences in productivity can be explained by the differences in the ratios of staff per patient or station between PH and PCNHS. The S.E.N., in the Guidelines for dialysis centres,²² recommends ratios of 40-50 patients per nephrologist, 4-5 stations in operation per nurse and 8-10 per nurse assistant. Some Autonomous Communities, such as the Autonomous Community of Madrid,²³ have established 4 stations per nurse or 8 per nurse assistant under their legisla-





tion. This means that, in the best case scenario, we can achieve an actual ratio of 3-3.5 sessions per nurse and 6-7 sessions per nurse assistant, and 4-4.5 actual sessions per nurse and 8-9 per nurse assistant if 5 and 10 sessions are scheduled for the nurse and nurse assistant. It is impossible to improve these ratios, especially in small units, as a result of deaths, transplants, admissions and the fact that patients start on dialysis when they need it and not when there is a station free.

The other factor that, in our opinion, has an effect on the difference in staffing costs between the two types of hospitals is the organisation of the unit. In general, PCNHS schedule three HD sessions in a 14-15 hour day, while many PH schedule one HD session of 5 hours for a 7-hour day. Therefore, 28% of nursing staff's day is unproductive.

Furthermore, with regard to staff management, the greater working flexibility in PCNHS to adapt staffing to the health-care needs at each moment in time is, without doubt, another factor that contributed to reducing these costs in PCNHS.

Improving the patient or session ratios per doctor, nurse and nurse assistant, adapting the organisation of staff working hours to the needs of the unit and scheduling higher activity with short, daily or other types of dialysis between work shifts are all essential measures to improve the units' productivity.

The second piece of information that is highlighted in the article is the 83% difference in the costs of consumables between the PH and PCNHS, when, as the authors stated, better prices would be expected according to the use of economies of scale. We think that this difference is even greater between the prices awarded in public tenders and the prices that can be achieved in direct negotiations. These differences may be explained by the delay in payments in government bodies and the need to finance monitors, ultrasound scanners or other equipment for the units, which results in high financing costs and makes it impossible to manage future purchases better as a commitment

has been made for a set length of time, and the introduction of new products in several protocols. Also, as De Francisco²⁴ stated in 2004, the financing of continuous training of nephrologists by the pharmaceutical and dialysis industry must be another factor that increases the costs of consumables for PH. This financing, without a doubt, must have grown over the last few years with the rise in congresses, conferences, general, local and monographic courses of all types. The PCNHS do this on a much lower scale.

Lastly, the study also highlights that other costs such as equipment maintenance, management, food, waste products, etc., which make up between 12% and 14% of the total, are also 19% lower in PCNHS. This may be due to the fact that it is easier to manage simpler units and that PCNHS are more concerned with costs and controlling any type of cost.

We agree with Arrieta and with the authors of this study when they reported that the understanding of the costs must be used to allocate resources. However, we cannot agree with them that making savings is not the objective of cost studies. When the sustainability of CRF treatment as we know it may be compromised, establishing, controlling and reducing costs becomes a priority.

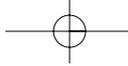
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KEY CONCEPTS

1. Awareness of costs should always be present in the nephrologist's clinical decisions.
2. Establishing costs and their economic impact should be an essential aspect when making planning decisions and allocating resources.
3. Establishing and limiting costs in all CRF treatment methods in Spain (HD, PD and KT) is a pressing need in order to maintain the healthcare model.
4. The increase in staff productivity in public hospitals and an improved economic management of purchases are essential to be able to improve the costs of these units.





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