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Choosing no to dialyze in stage V chronic renal failure. Evolution of the patient' characteristic between 1992-1995 and 2000-2003

M. García García, J. C. Martínez Ocaña, A. Rodríguez Jornet, J. Almirall Daly, E. Ponz Clemente, J. Ibeas and T. López Alba

Nephrology Department. Corporació Sanitaria Parc Taulí. Institut Universitari Parc Taulí.

SUMMARY

Background: *The incidence of chronic renal failure increase with the age. The selection of patient to dialysis has been increasing in spite of the high comorbidity. Moreover, in our clinical practice the aged patient is not contraindicated to dialysis. However, in the nephrology clinical practice not all the patients start the treatment with dialysis.* ***Objective:*** *The aim of our study has been to compare the characteristics of the patients who had not been dialyzed between the periods 1992-1995 and 2000-2003 to analyze the trend of the nephrology clinical practice.* ***Material and methods:*** *Comparative study of the characteristics and the evolution of patients with chronic renal failure in stage V (renal failure) not incorpored to dialysis in one hospital during four years between the periods the 1992-1995 (period A) and 2000-2003 (period B).* ***Results:*** *Start dialysis (period A* versus *period B): 116 patients, age 59.9 + 15.5 years* vs *229 patients, age 64.0 + 15.8 years ($p < 0.05$). Non-dialysis (period A* versus *period B): 38 patients, age 77.5 + 9.3 years* vs *37 patients, age 81.7 + 6.2 years ($p < 0.01$). Renal function: serum creatinina 7.4 + 2.4 mg/dl* vs *5.3 + 1.2 mg/dl ($p < 0.001$), MDRD estimate glomerular filtration 6.9 + 2.4 mg/dl ml/min/1.73 m^2* vs *10.0 + 2.3 ml/min/1.73 m^2 ($p < 0.001$). Primary renal disease: unknown etiology 31.5%* vs *24.3%, nephroangiosclerosis 23.6%* vs *32.4%, diabetes 28.9%* vs *21.6%. Functional status: dependent patients 34.2%* vs *83.8% ($p < 0.001$). The principal reason for non-dialysis were: personal decision: 26.3%* vs *35.1%, dementia 15.8%* vs *29.7%, brief life expectancy because of serious co-existing diseases 13.1% vs. 21.7% and serious chronic illness with inability for themselves care 44.7%* vs *13.1%. Comorbid conditions: 2.3 + 1.0* vs *3.0 + 1.5 ($p < 0.05$). Survival: 55 + 168 days* vs *168 + 236 days ($p < 0.001$).* ***Conclusión:*** *Most of the patients that don't begin dialysis are elderly together with a poor functional capacity and with more autonomy in their decisions. The identification of patients with renal failure (stage V) was detected early in the last period than in the following one. The conservative management of non-dialyzed uremic patients is a significative nephrology clinical practice due to more survival of those persons.*

Key words: ***Chronic renal failure. Non-dialytic management. Conservative management. Palliative care.***

Correspondence: Manuel García García
Corporación Sanitaria Parc Taulí
Parc Taulí, s/n
08208 Sabadell (Barcelona)
E-mail: mgarcia@cspt.es

ELECCIÓN DE NO DIÁLISIS EN INSUFICIENCIA RENAL CRÓNICA EN ESTADIO V (FALLO RENAL). EVOLUCIÓN DE LAS CARACTERÍSTICAS DE LOS PACIENTES ENTRE 1992-1995 Y 2000-2003

RESUMEN

Introducción: *La insuficiencia renal crónica (IRC) es una patología que aumenta su incidencia con la edad. La aceptación de pacientes para diálisis ha ido aumentando en los últimos años a pesar del incremento de la comorbilidad, no considerándose la edad como contraindicación para el tratamiento sustitutivo renal. No obstante, en la práctica clínica nefrológica hay pacientes que no son incluidos en diálisis.* ***Objetivo:*** *Comparar las características de los pacientes con IRC no incluidos en diálisis en los períodos 1992-1995 y 2000-2003 para analizar las tendencias evolutivas de la práctica clínica nefrológica.* ***Material y método:*** *Estudio comparativo de las características basales y la evolución de los pacientes con IRC en estadio de fallo renal (estadio V) en quienes se decidió la elección de No-Diálisis atendidos en un sólo hospital durante 4 años entre los períodos de 1992-1995 (período A) y 2000-2003 (período B). La elección de No-Diálisis fue por decisión del paciente si era autónomo o de sus representantes legales en caso contrario.* ***Resultados:*** *SI-Diálisis: (período A* versus *período B): n:116 pacientes, edad: 59,9 + 15,5 años* vs *n: 229 pacientes, edad: 64,0 + 15,8 años (p < 0,05). NO-Diálisis: (período A* versus *período B): n: 38 pacientes, 24,6% de la IRC que inició diálisis, edad: 77,5 + 9,3 años* vs *n: 37 pacientes, 13,9% de la IRC que inició diálisis, edad: 81,7 + 6,2 años (p < 0,01). Funcionalismo renal: creatinine sérica 7,4 + 2,4 mg/dl* vs *5,3 + 1,2 mg/dl (p < 0,001); filtrado glomerular estimado por MDRD abreviado: 6,9 + 2,4 ml/min/1,73 m^2* vs *10,0 + 2,3 ml/min/1,73 m^2 (p < 0,001). Enfermedad renal primaria principales: etiologia no aclarada 31,5%* vs *24,3%, nefroangiosclerosis 23,6%* vs *32,4%, diabetes 28,9* vs *21,6. Los motivos principales de la elección de no diálisis fueron: decisión personal 26,3%* vs *35,1%, incompetencia mental persistente 15,8%* vs *29,7%, pronóstico mortal a corto plazo 13,1%* vs *21,7% y deterioro crónico severo con incapacidad de cuidarse 44,7% vs 13,5%. Autonomia funcional: pacientes dependientes 34,2%* vs *83,8% (p < 0,001). Comorbilidades: 2,3 + 1,0* vs *3,0 + 1,5 procesos (p < 0,05), insuficiencia cardíaca 36,8%* vs *48,8%, enfermedad cerebro-vascular 47,3%* vs *51,3%, artropatía invalidante 13,1%* vs *43,2%. Supervivencia media 55 + 168 días* vs *168 + 236 días (p < 0,001).* ***Conclusión:*** *Los pacientes que no inician diálisis en los últimos años son más viejos, tienen peor capacidad física y son más autónomos en su capacidad de decisión. La identificación de los pacientes con IRC en estadio V se hace de forma más precoz y el seguimiento es más prolongado en el último período. El manejo nefrológico conservador de la IRC estadio V es una práctica clínica nefrológica significativa debido a la mayor supervivencia de estos pacientes.*

Palabras clave: ***Insuficiencia renal crónica estadio V. Manejo no dialítico. Manejo conservador. Cuidados paliativos.***

INTRODUCTION

Patients with terminal vital organ dysfunction may currently still be alive by using complex and expensive technologies. Chronic renal failure is a paradigmatic case. The incidence of new patients with end-stage chronic renal failure that start on chronic dialysis has been increasing in developed countries at the expense of aged patients with multiple pathologies, especially diabetics and with vascular pathology.[1,2] Several years ago, these patients were not offered or considered for chronic dialysis. The nephrology clinical practice has changed through recent years coinciding with health care globalization, patients' autonomy promotion, and increased resources assigned to renal failure. Besides, the criterion that age is not a contraindication for chronic dialysis has been consolidated. In nephrology clinical practice there are, howe-

ver, patients that are not included in chronic dialysis due to high variability of criteria.[3,4] This is a little studied issue, although with high health care interest.

In recent years, the staging of renal disease into five levels has been consolidated. The more advanced level is stage V, which is defined as glomerular filtration rate lower than 15 mL/min/1,73 m^2 that is considered complete renal failure, at which time dialysis should be started, if required.[5] The best time to start dialysis therapy is currently unknown. One of the most widely diffused nephrology clinical guidelines, the Kidney Disease Outcomes Quality Initiative (K-DOQI) American guidelines from the National Kidney Foundation, recommend starting dialysis when glomerular filtration decreases down to values close to 10.5 mL/min/1.73 m^2 unless that the three following conditions occur together: lack of weight loss in the absence of edema, lack of protein malnourishment, and absence of uremia-attributable clinical signs and symptoms.[6] Compared with other criteria that have later onset, these criteria have generated controversy. Thus, in several observational studies a significant benefit on survival[7,8] or on one-year quality of life[9] has not been observed with earlier start of dialysis. On the other hand, one observational study has reported an increase in mortality with early start of dialysis among the low-risk population,[10] thus recommending careful and individualized clinical assessment of the patient when starting on dialysis.

Therefore, a time period may run since stage V renal disease is confirmed until dialysis is started or death occurs if the option of not to dialyze is decided. The evolution period since stage V renal disease until death occurs in the absence of dialysis has been little studied. On the other hand, the nephrology clinical practice guidelines about start of dialysis have changed in recent years.

The aim of our study has been to examine and compare the characteristics and survival of stage V chronic renal failure patients not included in chronic dialysis between the periods 1992-1995 and 2000-2003 to analyze the trends of the nephrology clinical practice.

MATERIAL AND METHODS

This a comparative, prospective, cohort study on the baseline characteristics and survival of patients with stage V chronic renal failure[5] in whom it was decided not to dialyze. The patients were assisted at just one center, Corporación Sanitària del Parc Taulí of Sabadell, with a reference residential area in 2006 of 410,366 inhabitants. Two four-year periods have been examined and compared, 1992-1995 and 2000-2003.

From a prospective registry of advanced renal failure, we analyzed those patients with estimated glomerular filtration rate lower than 15 mL/min/1.73 m^2, considered as stage V or renal failure according to the renal insufficiency staging.[5] We applied the calculation of the estimated glomerular filtration rate was the abbreviated Modification of Diet in Renal Disease (MDRD) that incorporates a correction for the body surface.[11,12] The parameters registered were the following: date of inclusion, age, gender, ethnicity, body weight, serum creatinine, serum urea, comorbidities (coronary heart disease, heart failure, cerebrovascular disease, chronic obstructive pulmonary disease, neoplasm, diabetes mellitus, chronic liver disease, disabling artropathy, active disease of the gastrointestinal tract, peripheral arteriopathy, neuropathy, sensorial deficiency, and psychiatric disease), level of functional autonomy according to the Gutman's scale,[13] main reason for not dialyzing, primary renal disease, and survival. The follow-up of the survival of not dialyzed patients was closed on April 30th of 2006. The medical indication for dialysis onset was done at our center by the nephrologist in charge of the patient on an individualized basis, according to international recommendations, particularly since the year 2002 taking into account the European guidelines.[14] In summary, we proposed the patient starting on hemodialysis if the glomerular filtration rate was lower than 15 mL/min/1.73 m^2 with uremic clinical situation, inability to control the volume overload, or deterioration of the nutritional status. Generally, dialysis onset was proposed in all cases when the glomerular filtration rate was ≤ 6 mL/min/1.73 m^2 even if no symptoms were present.

The decision of not dialyzing was made by the patient if he/she was autonomous, or by the legal representatives in the opposite case after the nephrologist had recommended it. In case of possible disagreements between the health-care team criteria and those of the patient or his/her legal representatives, the criteria of the latter were always respected.

The statistical analysis of the data was done by means of basic descriptive statistics and univariate analysis to compare groups by the Student's t test, the chi-squared test, the Fisher's exact test, and actuarial survival by the Kaplan-Meier method. The SPSS for Windows 13.0 statistical software was used for all the study.

RESULTS

Table I shows the demographical characteristics of the patients attended during the periods 1992-1995 and 2000-2003, of both included and not included

Table I. Demographic characteristics

	1992-1995		2000-2003
DIALYSIS-YES			
-Number	116 patients		229 patients
-Age	59.9 ± 15.5 years	p < 0.05	64.0 ± 15.8 years
DIALYSIS-NO			
-Number	38 pat. (24,6% CRF-V)		37 pac. (13.9% CRF-V)
-Age	77.5 ± 9.3 years (47-91 years)	p < 0.05	81.7 ± 6.2 years (65-92 years)
-Males	36.8% (14 pat.)	NS	54.1% (20 pat.)
-Females	63.2% (24 pat.)	NS	45.9% (17 pat.)

Table II. Renal functioning at the beginning of the No-Dialysis Registry

	1992-1995		2000-2003
Serum creatinine	7.5 ± 2.4 mg/dL (3.6-15.7 mg/dL)	p < 0,001	5.3 ± 1.2 mg/dL (3.4-8.8 mg/dL)
Serum urea	279.6 ± 82.6 mg/dL (150-612 mg/dL)	p < 0,001	203.4 ± 54.2 mg/dL (102-318 mg/dL)
Glomerular filtration Abbreviated MDRD	6.9 ± 2.4 mL/min/1.73 m^2 (3.1-14.4 mL/min/1.73 m^2)	p < 0,001	10.0 ± 2.3 mL/min/1.73 m^2 (5.4-14.6 mL/min/1.73 m^2)

into the dialysis program. A significant increase of the age of the patients starting dialysis may be observed. Patients not starting dialysis were very much older than those doing so, and a significant age increase could be verified between both study periods, varying from 77.5 ± 9.3 years to 81.7 ± 6.2 years. There were no differences regarding the gender. It is striking that during the period 1992-1995 the percentage of stage V CRF patients seen at our hospital not included in dialysis was 24.6%, whereas during the period 2000-2003 this percentage was reduced to 13.9%, in spite of the increasing age.

Table II shows renal functioning at the beginning of the no-dialysis registry. The level of renal failure was significantly more advanced during the period 1992-1995 than in 2000-2003, the mean estimated glomerular filtration rate being de 6.9 ± 2.4 mL/min/1.73 m^2 in 1992-1995 and de 10.0 ± 2.3 mL/min/1.73 m^2 in 2000-2003.

Table III describes the primary renal disease. Most of the cases correspond to diagnoses of nephroangiosclerosis, unknown nephropathy, and diabetic nephropathy. There were no significant differences between both periods.

The comorbidities are shown in Table IV. There was a significant increase of the average number of conditions per patient between both periods; thus, whereas 2.3 ± 1.0 processes were recorded in 1992-1995, this number was 3.0 ± 1.4 processes in 2000-2003. The most frequent comorbid conditions in both periods were cerebrovascular disease, heart failure, and diabetes mellitus.

Figure 1 shows the level of functional autonomy of the patients not included in dialysis in both study periods. A significant increase of the level of dependence of the patients during the last period stands out, so that whereas the percentage of patients being able to care for themselves, although with a limited level of physical activity, was 63.2% during 1992-1995, this percentage was reduced to 16.2% in 2000-2003. On the other hand, the percentage of patients requiring hospitalization or continuous care increased from 10.5% to 54.1%.

Figure 2 includes the main reason for not choosing dialysis. The presence of a significant change in the pattern of not inclusion into dialysis may be pointed out. Thus, whereas the main reason during the period 1992-1995 was a general chronic deterioration with inability to care for oneself (44.7%), this became the last reason (13.5%) during the second period. During the period 2000-2003, the main cause of no dialysis was the personal decision with full autonomy, accounting for 35.1% of all the cases. The decision of whether dialysis or not in the setting of stage V CRF is a process that we have developed with the patient's participation if he/she is autonomous or his/her legal representatives.

Actuarial survival is shown in Figure 3, observing a significant difference regarding survival between the periods 1992-1995 and 2000-2003. Thus, during the first period, the mean survival was 55 ± 168 days, with a median of 13 days and a percentage of exitus before 61 days of 68.4%; during the second period, the mean survival was 168 ± 236 days, with a median

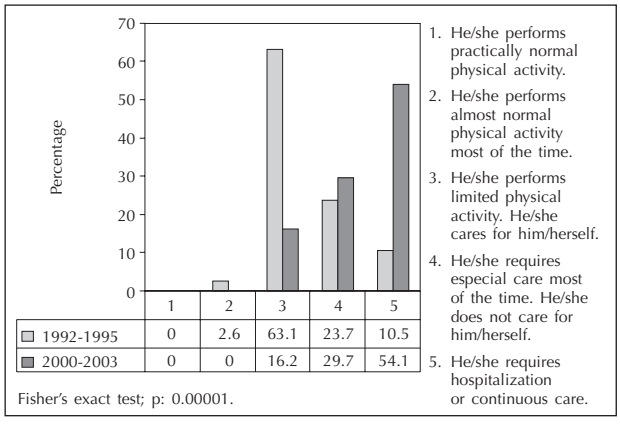

Fig. 1.—Level of functional autonomy of non-dialysis patients.

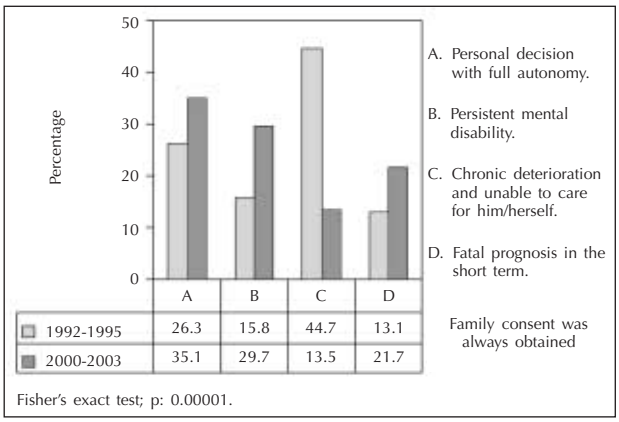

Fig. 2.—Main reason for not choosing dialysis.

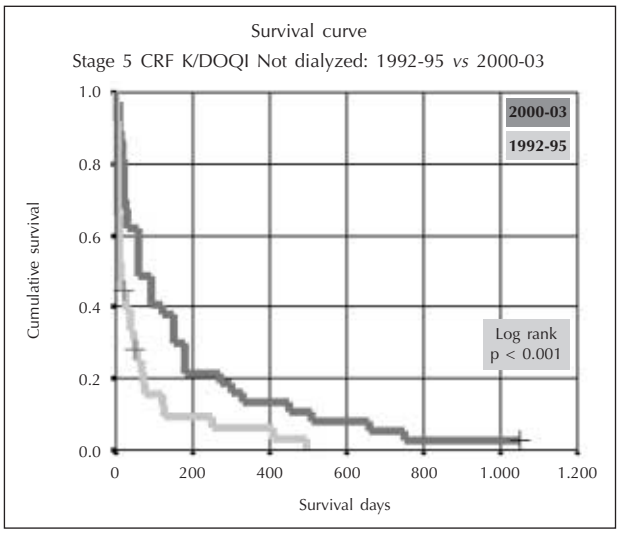

Fig. 3.—Actuarial survival of non-dialysis patients.

of 60 days, and a percentage of exitus before 61 days of 51.3%. It also may be pointed out that there were 5 patients (13.5%) in whom the survival was longer than one year during the second period. During this same period, there were 3 patients (8%) that changed their decision and chose dialysis.

DISCUSSION

Our study makes evident a significant change in the characteristics of the patients in whom it was decided not to start on chronic dialysis when comparing the periods 1992-1995 and 2000-2003. Thus, in the second period, patients were older, more dependent, and more autonomous for making decisions. The more common pathologies for CRF were vascular and diabetic nephropathies in both periods, as well as CRF of unknown etiology diagnosed at an advanced stage, likely due to nephroangiosclerosis, as it has been described in old people.[15] Besides, the level of dependence of the patients in whom it was decided not to start on dialysis was very high, in agreement with the experience from other studies.[16] The making of a decision during the second period was done at a time of renal failure progression less advanced than in the first period, the follow-up time was quite long for a stage V renal disease, and moreover, it was observed that some patients changed their minds and decided to start on dialysis. This pattern change has occurred in a very short time coinciding with the non-restricted access to dialytic therapies and with the promotion of patient's independence for decision making. The new patient profile is due to a change in the demands of nephrologic care to which previously patients seldom had access to possible assessment to receive it. On the other hand, these are patients requiring a specific nephrologic management in order to slow down their progression to renal failure and mitigate uremic impairments, by acting on AHT, anemia, renal osteodystrophy, metabolic acidosis, and water and electrolytic impairments until they reach a terminal uremic stage, at which time only palliative care remains to be done.

Nephrology units should be prepared to treat this type of patients at the same time they care for the patients that will start on chronic dialysis or may receive a renal transplant. Health care programs dealing with these needs are the same taking care of patients with advanced renal failure; and similarly as they account for preparation for hemodialysis by creating an arterial-venous fistula, placing a peritoneal catheter, or preparing the patient for renal transplantation, they should follow-up the specific conservative nephrologic management of those not receiving renal replacement therapy. The process of decision-making should be shared with the patient and/or his/her relatives after having widely informed on the prognosis, always offering palliative supportive care.[17] These units should not be named «pre-dialysis unit», as sometimes are referred to, but Chronic Renal Failure Units.

The study being presented is the result of a registry and follow-up of patients done at a single center since 1992. Usual registries on CRF patients tend to only focus on those receiving renal replacement therapy, and even though they yield very valuable information, they only gather part of the reality on advanced chronic renal failure. A follow-up of patients as we did is seldom carried out. A limitation of our study is that we have no guarantee on having recorded every patient presenting chronic renal failure from

Table III. Primary renal disease of patients included in the No-Dialysis registry

	1992-1995 (n: 38)	2000-2003 (n: 37)
Unknown nephropathy	31.5%	24.3%
Nephroangiosclerosis	23.6%	32.4%
Diabetic nephropathy	28.9%	21.6%
Multiple myeloma	–	5.4%
Polycystic renal disease	–	5.4%
Chronic pyelonephritis	7.9%	5.4%
Extracapillary GN	–	2.7%
Amyloidosis	7.9%	2.7%

Chi^2: 7.32; P: 0.32. NS.

Table IV. Comorbidities of patients included in the No-Dialysis registry

	1992-1995 (n: 38)	2000-2003 (n: 37)
Hearth failure	36.8%	48.6%
Coronary heart disease	18.4%	18.9%
Peripheral arteriopathy	15.6%	27.0%
Diabetes Mellitus	31.6%	27.0%
Cerebrovascular disease	47.3%	51.3%
COPD	13.1%	21.6%
Neoplasm	10.5%	5.4%
Disabling artropathy	13.1%	43.2%
Chronic liver disease	5.2%	5.4%
Active GI disease	7.8%	2.7%
Severe sensorial deficiency	2.6%	29.7%
Severe psychiatric disease	2.6%	5.4%
Average number of conditions	2.3 ± 1.0	3.0 ± 1.4*

*P < 0.05.

our reference area, either because they may have gone to other hospitals or either because they have not been recorded due to underreporting of this type of very old or with severe comorbidity patients. Anyhow, our data do allow us affirming that there is a great proportion of end-stage renal failure patients that do not start on renal replacement therapy and whose natural history is quite unknown.

In previous studies on patients with advanced CRF not included in dialysis programs in countries with any explicit restriction to this kind of therapy it was already observed that their number was significant and they tend to be old patients with comorbidities.[18] We also have reported this phenomenon in a previous study from 1997.[19] On the other hand, in a recent publication studying the characteristics and progression of patients considered by their nephrologists not to be candidates to dialysis no significant differences were observed in survival rates between those starting on dialysis as a palliative therapy and those not doing so.[16] One of the controversial issues is the diversity of criteria from the nephrologists to indicate dialysis in relation to the type of patient. Thus, in a large international study on nephrology clinical practice, including France, Germany, Italy, Spain, the United Kingdom, and the United States, different criteria were observed for including patients into chronic dialysis programs.[4] The criteria variability refers to patients with dementia, multiple medical problems, dependent, or very old. Our criterion has been to apply a process of shared decision-making. When there is a situation of advanced renal failure, and after the nephrologists has informed and made a recommendation, the patient (in the case of being autonomous) or his/her legal representatives were asked whether they chose renal replacement therapy or not. If the patient chose dialysis, he/she was offered a large help informative program for choosing between hemodialysis and peritoneal dialysis, with the corresponding appropriate preparation. If the patient or his/her legal representatives decided not to dialyze, a conservative management was carried out, always with the possibility of changing up their minds, as it occurred in three occasions.

The profile of patients not currently included in dialysis is that of older and more dependent patients, with more comorbidities than a few years ago, although the patient's own decision is currently, and in our experience, the main reason for not starting dialysis. We have not studied the differences between the nephrologist's recommendation and the decision from patients or their relatives. There never was a conflict with the patients or their relatives, since their decision was always respected.

In modern medicine, the practice of the informed consent has consolidated, from which the patient's capacity and his/her legal right for making decisions affecting his/her own body or health are recognized, becoming the core of the physician-patient relationship.[20] Not choosing a vital supportive chronic therapy, as is dialysis, is a potentially conflicting issue from an ethical point of view. In our experience, there was a process of revision and positioning of the Health Care Ethical Committee in order to make the clinical practice easier regarding inclusion or discontinuation of dialysis, in which the whole Nephrology Department took part, including both physicians and nurses.[21] Including the patient and/or his/her relatives in the decision making process on renal replacement therapy is a communication challenge of the nephrology team, especially when non-dialytic conservative management is chosen. It is highly desirable that the health care team shares the same viewpoint with regards to chronic vital supportive therapy, as is chronic dialysis, putting first the patient's perceived quality of life. Another issue highlighted in our study is that under the name of «stage V», the last of the classifica-

tion of renal disease, also called complete renal failure, a perspective is envisaged that for some patients may be very long without requiring dialysis. From this perspective, we believe that higher attention must be put on this stage V of renal disease that is more very advanced renal failure than end-stage chronic renal failure, as is sometimes termed by a pure administrative interest.[5] Patients with slow progression of their renal disease, as it happens in old people with interstitial nephropathies or nephroangiosclerosis and other controlled factors of renal disease progression, may present a clinical course with few uremic symptoms dying from other causes. These patients require specific care, either if they are prepared for dialysis or if they will follow a non-dialytic conservative therapy.

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