

Status of the specialty of nephrology as regards the need for nephrologists and their training

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Nefrología 2008; 28 (3) 241-244

Many questions and doubts cross the minds of nephrologists worried about the future of our specialty. The purpose of this editorial is to raise some of the most pressing current questions and to attempt and answer them: on the one hand, is there a shortage of nephrologists? and, as a result, how many nephrologists should be trained in the coming years? On the other hand, how are we training them?, what is the quality of nephrology training of intern and resident physicians?

IS THERE A SHORTAGE OF NEPHROLOGISTS?

Introduction

At the beginning of past summer, there was an offer of more than 130 positions for nephrologists that would hardly be covered in the light of what has been happening in recent years. The employment web site¹ listed 90 offers one year ago, and 156 offers today, since December 2004. Some positions have been posted several times, which means they have not been covered. It is true that the positions required very different qualifications. Positions for outpatient dialysis centres with high salaries were most common, but there were several public hospital positions, specifically 34 (2007) and 70 (2008), that were mostly for on-call duties or substitutions. Does this mean that there are not enough nephrologists? This is a difficult to answer question, but after considering all appropriate qualifications, it should be stated that it is apparently true that there are not enough nephrologists... for the current demand. However, this demand may not be correct.

However, is this a widespread problem, i.e. is the shortage of nephrologists part of a general shortage of physicians, or is the problem limited to some specialties? There is no easy answer to this question either.

Is there a shortage of physicians in Spain?

This is the title of a report that Miguel Ángel García and Carlos Amaya² have been publishing for some years about the need

for physicians in Spain.^{3,4} After a long, documented, and reasoned discussion, these authors conclude that «... the available data do not confirm an absolute deficit of physicians in Spain, but... will occur in the near future.» They also state that the problem lies in an inadequate distribution of physicians.

An excellent study conducted by Beatriz González López-Valcárcel and Patricia Barber⁵ at the request of the Ministry of Health and Consumer Affairs presented less than one year ago reported data leading to similar conclusions: while retiring physicians are currently being adequately replaced by the somewhat over 4,000 medicine students graduating every year and foreign physicians whose qualifications are recognised, there is a trend to an increased number of leaves. Since at least 10 years are required on average to train a specialist, an increase should already have occurred in 2006 in the number of undergraduates and in the number of physicians trained in specialties, in addition to other measures, to ensure adequate replacement (for which 7085 physicians are estimated to be required in 2016).

There is however universal agreement in that a thorough understanding of the problem is difficult, particularly since the different sources report significantly different numbers of physicians.² Until registries of physicians stating whether they are active, not involved in healthcare, or inactive (retired and other categories), recording migratory movements in one or the other direction, etc. are available, approximate estimations can only be made.

The shortage of nephrologists

However, has the poor geographic distribution of physicians and their deficit in absolute numbers in the near future anything to do with the shortage of nephrologists? It appears obvious that the answer is yes. Approximately 4,200 physicians are graduating each year in Spain, while in 2006, for instance, there was an offer of 5,897 positions of intern and resident physicians. Such offer was based on the needs estimated by the National Nephrology Commission, the autonomous communities, and the Ministry of Health and Consumer Affairs, the organisations that establish the number of intern and resident physicians to be trained each year based on the needs and the available budget. From that year, marking a turning point, the gap will again occur, and the shortage will therefore continue to increase (foreign physicians coming to cover the unmet demand are not sufficient) and will also impair the

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Table I. Factors increasing the need for nephrologists

- Marked population increase.
- Increased income levels.
- Increased technification and appearance of new technologies.
- Extension of diagnostic and therapeutic indications.
- Aging of the population.
- Reduction in the effective time of medical work due to:
 - a higher proportion of female physicians (women tend to combine personal and work life to a greater extent).
 - Aging of professionals.
 - Work measures (e.g. no on-call duties or voluntary choice of more free time).
 - Increased number of nephrologists not active in nephrology.
 - Emigration to other countries.

competence level by transgressing an implicit criterion existing since the start of the intern and resident programme, selectivity, particularly favouring physicians with higher marks.

In addition, the shortage of nephrologists will increase. The abovementioned study by Beatriz González López-Valcárcel y Patricia Barber,⁵ conducted at the request of the Ministry of Health and Consumer Affairs, did not report a current deficiency of nephrologists. However, such report included data showing that a half of the 1,135 Spanish nephrologists were over 50 years of age, with a population pyramid showing a concentration at high ages. Females account for 42% of nephrologists (and for 80% of future nephrologists in the intern and resident programme). Three- and five-year replacement rates are 0.92 and 0.78, which means that retiring nephrologists will soon not be replaced, and the mid-term balance will even be worse, since only 78% of positions left by retiring nephrologists will be covered by physicians from the intern and resident programme. Moreover, the needs will continue to increase (see table I). Factors traditionally increasing the need for specialists and the healthcare budget include population increases, higher incomes, increased technification and appearance of new technologies, and extension of the diagnostic and therapeutic indications, while population aging only accounts for 10% of budget increase. Moreover, reduction of the effective working time of physicians resulting from a series of emerging causes is already noted and will be increasingly important.

In Spain, there are also territorial imbalances⁶ that appear to be mainly due to the population pyramids of professionals, which are older in some autonomous communities (those having older public hospitals dating back to the time of the old social security system)⁷ as compared to others, and to the different attraction exerted by the different communities. The shortage of nephrologists is also more marked in certain autonomous communities with a low geographic variability as compared to other specialties, but the number ranges from 1 and 2.86 nephrologists employed in public hospitals per 100,000 inhabitants, which is causing an excess competition between communities and between outpatient haemodialysis centres within the state-assisted sector.

While in 2005 the intern and resident programme offered 80% more positions in nephrology as compared to 1990 and the offer for the 2010/2006 and 2016/2006 periods will increase by 5.05% (to reach a total of 1306 nephrologists, as compared to the current 1,135 nephrologists) and 24.22% (1,785) respectively, such increase will only be sufficient for 2016 in the event of a moderate increase in demand. However, a strong growth in demand is expected, and shortage therefore appears to be assured in the first period. By contrast, in 2030, assuming the current offer and a moderate increase in demand, an excess of nephrologists greater than 10% is expected, while a moderate excess ranging from 5% and 10% will occur in the event of a strong increase in demand.

What actions are being or should be taken?

Short-term actions must therefore be taken. In this regard, the Ministry of Health agreed to the request from the National Nephrology Commission to announce all possible training positions, using up our recognised teaching capacity. Thus, 93 positions were offered for 2007 (and 95 for 2008), which represents a marked increase as compared to the annual means of 55 positions in the 1996-1999 period, 32 in 2000-2003, and 63 in the 2004-2007 period.⁵ On the other hand, a rigorous but flexible recognition of qualifications of foreign nephrologists is required. Recognition is so slow that in the past two years only 6 foreign nephrologists have been certified directly, and another one after a theoretical and practical exam by the National Nephrology Commission and the Ministry of Health. Mid-term actions should also be taken, including the abovementioned increase in the number of medicine graduates, speeding up the current growth rate in the number of intern and resident training positions, flexibility in awarding degrees based on the common features with related medical specialties (in agreement with the views stated by all members of the National Commission in several recent surveys), and adjustments in demand.

Once the first question and some answers to it have been addressed, we should now ask the second question.

WHAT IS THE QUALITY OF INTERN AND RESIDENT TRAINING IN NEPHROLOGY?

It is also interesting to know how are intern and resident physicians in nephrology being trained, because we suspect that the training level may be decreasing and can decrease even more, particularly because of a decreased selectivity in training positions or a reduction in the effective time of medical work, as shown in table I, already occurring during the training period.

In addition to obvious causes, there are other hidden causes. All experts in systems in general, and in educational systems in particular, say that what is not evaluated tends to worsen. There has been an increasing concern about the quality of training received by our specialist physicians. While the role played by our intern and resident system in postgraduate training is not questioned (it is the factor of our healthcare system most valued in Europe, together with cadaveric donation

Table II. 2007 tutor survey. Teaching sessions

3.8. Teaching sessions				
Session	Yes	Weekly	Every 2 weeks	Monthly
General hospital session	41	21	1	18
Nephrology clinical session	42	29	1	4
Theoretical subject developed by R.	41	18	10	14
Seminars developed by staff	29	14	5	9
Nephropathology	33	10	7	11

for solid organ transplant), all actors, national commissions, the General Council of Specialties in Health sciences, the Ministries of Education and Health, scientific societies, tutors, training intern and residents, etc. agree that things may not be going so well now.

How can the status of training in nephrology of intern and resident physicians be assessed as objectively as possible?

Indirect data may be used for this assessment. Specialties with a shortage of physicians will tend to be among those preferred by interns and residents,⁵ but their choice may be influenced by other factors such as prestige of the specialty, the possibility of staying at their home town, a convenient practice not requiring too many duties, and so on. The demand for training in nephrology in recent years has been below the average demand for all specialties (nephrology ranked 29 among 47 specialties in the last four years). The need for nephrologists has therefore not translated into an increased demand for training in this specialty (nephrology ranked 25 in the list in 2003). This is likely to be due to the fact that physicians remember the time when nephrologists who had just completed the specialty did not easily find an attractive position. However, is this the only possible reason? Unfortunately, we think it is not.

There has been for some time a general agreement⁸ in that the residency training period in nephrology is too short in

Spain as compared to all other European countries, and this difference has become more evident as a result of the decrease in the effective training time. Training should be at least one year longer, i.e. residency should last five years, as recently requested by the National Nephrology Commission to the Ministry of Health.

Surveys are a relatively reliable method for assessing training, provided they are conducted rigorously and under quality conditions, e.g. ensuring anonymity and using adequate samples.

The National Nephrology Commission therefore undertook in June 2004 the first survey to residents. The «Survey to Spanish residents in nephrology» was presented in October 2005 by Blanca Miranda to the 35th Congress of the Spanish Society of Nephrology (SEN). Though the survey sample was small (77 interviews, i.e. approximately 25% of interns and residents in nephrology being trained at the time), the conclusions drawn from it were as follows:

- Theoretically good. In practice, probably poorly regulated and deficient.
- Lack of internal and external training control.
- Poor perception by residents: few tutorial sessions, few progressive responsibility, training perceived as deficient in most areas, some residents do not do nephrology on-call duties, few practical training, in some centres there are no formal sessions and no pathological sessions...
- Publications by teaching units in international scientific journals are few or unknown to residents.
- Half the residents rate the training provided as poor or very poor.
- High number of centres and residents?

Because of these results, and in order to know what had changed in 3 years, the National Nephrology Commission, with the support of the Spanish Society of Nephrology (SEN) and the Ministry of Health, conducted in the third trimester of 2007 two surveys on all residents in the third and fourth years

Table III. 2007 survey to nephrology tutors

5. CONSIDERATIONS ABOUT THE EFFICIENCY OF THE TRAINING SYSTEM AT YOUR TEACHING UNIT				
5.1. What is the mean training level of your residents as clinical nephrologists?				
Very poor	Poor	Sufficient	Good	Excellent
0	1	7	29	7
(Inadequate training in most residents)	(Inadequate training in some residents)	(Adequate training in almost all residents)	(Adequate training in almost all residents and very good in some)	(Very good training in almost all residents)
5.2. Rate from 1 to 10 the following in your current residents at the end of the training period				
	5-6	7-8	9-10	
Training as clinical nephrologist	3	24	16	
Theoretical training	11	29	3	
Understanding of literature and capacity to review a subject	6	28	8	
Capacity to design and conduct clinical research	20	22	0	
Self-training capacity	10	30	2	

of the specialty and on their tutors respectively. Results were analysed in a tutor meeting held in the Ministry of Health on past October 24 (see article by Carlos Quereda, vice-chairman of the National Nephrology Commission, with the complete data⁹ in this same issue). Briefly, when the three surveys are compared, the tutor survey appears to show improvements in tutorship, sessions (see table II), and the training level reached at the end of the residency period (see Table III) as compared to the first survey to residents. However, tutors and residents logically appear to have different views, though there may be bias, because responses were only obtained from a percentage of those surveyed (somewhat over 50% among tutors, a low 15% in the first survey to residents, and approximately 40% in the second survey). This suggests that respondents among tutors are those most motivated and with achievements to show, while respondents among residents are those who are dissatisfied and have a more deficient training.

Anyway, in an article published in *Nefrología* ten years ago,¹⁰ Carlos Quereda wrote: «Postgraduate teaching in nephrology is threatened by various factors: 1) heterogeneity of the teaching offer (often excessively focused on haemodialysis); 2) precariousness of teaching units, that cannot teach the whole curriculum of the specialty; 3) a decreased interest of residents in nephrology because of its poor future prospects (as shown by the increase in the mean position achieved in the intern and resident exam by those requesting training in our specialty); 4) lack of research training programmes; 5) overall decrease in the number of residents in recent years because of the abovementioned scarcity of professional opportunities.» As may be seen, all these factors, except for the last, continue to be operative.

Mention should also be made of the just requests by the tutors surveyed with regard to their recognition, professionalisation, dedication time and payment, and so on. It should be noted that the new decree on resident training (RD 183/2008, of February 8) may allow for meeting most of these demands.

What actions are being or should be taken?

The National Nephrology Commission, the Spanish Society of Nephrology, and specialty tutors concluded in the abovementioned meeting held at the Ministry of Health that, among other objectives, the training level of our residents must be improved. The specific objectives include:

- Improving the training level of our tutors through specific courses.
- Reinforcing the figure of the tutor, in order to put into practice the provisions in the Royal Decree on resident training recently approved by the Council of Ministers.
- Creating a tutor club that maintains regular contacts with the National Nephrology Commission and the SEN to agree on initiatives.
- Such as a book for nephrology residents.
- Continued evaluation (the SEN has launched a board with the endorsement of the National Nephrology Commission, and holds frequent meetings to improve resident training).

- And other initiatives that help us face future challenges that are already emerging.

In his abovementioned 1998 article,¹⁰ Dr. Quereda proposed as the following as initiatives to improve teaching for intern and resident physicians in nephrology:

- Reinforcing the role of nephrologists as clinical specialists.
- Providing training in nephrology that covers all basic aspects of the official curriculum proposed by the national commission of the specialty.
- Training for research.
- New teaching techniques: evidence-based medicine as a teaching instrument.

Some additional actions would be required, such as emphasising the significance of rotations through other departments, preferably in other countries, during the residency period. It would also be convenient to review and confirm the teaching accreditations of the nephrology departments. On the other hand, the current system for evaluating resident training should be changed, but I do not know if this should be in agreement with the direction marked in the mentioned new decree. In any case, it is important not to forget that all these problems have not an easy solution¹¹.

Finally, we would like to remember a statement by Santiago Ramón y Cajal («You can only teach what you practice») which may be given two meanings when applied to the case in hand: first, that training of interns and residents in nephrology depends on all of us as nephrologists, and second, that our good practice of the specialty is essential as an example to be followed by younger physicians.

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