



Rates of renal transplantations in the elderly—data from Europe and the US



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ABSTRACT

The demography in most part of the world is changing with an increasing proportion of elderly persons. This is expected to reflect demography of patients accepted for renal replacement therapy both in the form of dialysis and transplantation. Based on this, the intention of the present review is to collect and describe available data on rates of transplantation with focus on the elderly patients in both Europe and the US. Data were collected from available sources including activity reports from national and supranational registries on uremia, organ procurement, waiting lists, and transplantations. Since 1990 both absolute numbers and proportions of elderly patients starting renal replacement therapy have increased dramatically in both Europe and the US. Although the pattern of changes is similar in Europe and the US, the incidence and prevalence rates for renal replacement therapy in the elderly are 3–4 times higher in the US. In the same period, the rates of renal transplantations in the elderly patient group have increased in both Europe and the US with increased access to the waiting list and to transplantation. Data from the United States Renal Data System on incidence of transplantation document a substantial increase in proportion of elderly transplant recipients (65 + years) from 4.2% in 1990 to 17.2% in 2012 and an increase in proportion of prevalent elderly renal transplant patients from 3.8% in 1992 to 23.3% in 2012. Similar changes have been seen in Europe. Due to these alterations in the demography of the transplant patients in both Europe and the US it is concluded that the elderly transplant patient from being a rare patient has now become a common patient necessitating increased focus on this group in order to optimize treatment results.

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1. Introduction

The demography of most countries and especially in the industrialized part of the world has changed dramatically over the last century, with an ever-increasing proportion of persons in the older age groups [1]. From being a pyramid, the demography plot is now approaching square shape. These changes are expected to impact rates of transplantation in different age groups and thus the demography of renal transplant patients.

Rates of transplantation are the resultant of a process preceding the transplantation. Merely describing rates of transplantation without taking this process into account only gives half of the picture. Schematically the process can be described in different stages, i.e. the patient reach ESRD, work-up for and assignment to the waiting list or living donor transplantation, and finally the transplantation. Multiple factors can influence patient transition, both positively and negatively, between stages. A detailed description of all these factors is beyond the scope of this review, where the focus will be on background demographic of patients with end stage renal disease, on access to transplantation, faith on the waiting list

and finally, on rates of renal transplantation. The intentions are to explore possible similarities or differences between Europe and in the US.

One striking difference between the Europe and the US is the lack of a comprehensive registry of ESRD, waiting list for renal transplantation and renal transplantation across Europe. In the US, the USRDS is a valuable source of information. The only true pan European publication on transplantation is the yearly report from The Council of Europe “Newsletter Transplant” that gives total numbers of renal transplantation in the different European countries for living and deceased donors [2]. If more detailed data are needed these have to be collected from multiple sources, none that covers the whole of Europe. However, with these limitations, the following is an attempt to give an up-to date description of rates of renal transplantations in Europe and the US with special focus on the elderly patient.

Regarding recommendations for renal transplantation guidelines from both Europe and the US agree that age *per se* should not be a contraindication to transplantation [3–5].

2. Demography background of ESRD patients

The incidence and prevalence of ESRD patients in RRT have increased in most Western countries over the last decades, with a steeper increase from approximately 1990 to 2005. Data from the US show that the increase is mostly due to an increased number of ESRD patients above

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65 years of age [6]. In these age groups, the incidence rate has reached a peak in 2001–2008 with a slight decrease since then being 1270 PMP in 2012 for the age group 65–74 years and 1618 PMP for the age group above 75 years. As expected, the prevalence rates for ESRD in the US have shown a similar increase, however without reaching a plateau yet [6]. The prevalence rates of ESRD in the age groups above 65–74 years in the US were in 2012 6302 PMP and for the age group above 75 years old 6261 PMP. The prevalence of ESRD for these two age groups is far the highest and is still increasing.

In Europe, data from the UK Renal Registry show the same pattern, with a substantial increase in the incidence of ESRD in the age group above 65 years from approximately 100 PMP in 1990 to a plateau of approximately 330 PMP reached in 2005 and onward [7].

The ERA-EDTA annual report for 2012 gives the incidence rates for age groups in selected countries covering approximately 282 million people [8]. These data confirm the tendency from the data mentioned above with far the highest incidence rates in the elderly age group in all countries. Some variation can be found in incidence rate of ESRD in the different countries and regions reporting to the ERA-EDTA registry. The incidence rates for the age group 65–75 years vary from 136 PMP in Iceland to 554 PMP in the French speaking part of Belgium and in the age group above 75 years from 191 PMP in the Cantabria region, Spain to 823 PMP in the French speaking part of Belgium [8]. From the ERA-EDTA registry annual report 2012, the prevalence of ESRD in patients 65–74 years old varied from 1625 in Serbia to 3654 PMP in the French-speaking Belgium. In the age group 75+ years, the prevalence of prevalent RRT patients varied from 1023 in Serbia to 4262 in the French-speaking Belgium [8].

On a national European level, data from the Danish Renal registry confirm these trends (Fig. 1). As can be seen from the figure, the incidence rates for ESRD from 1990 to 2013 for age groups below the age of 60 have been rather constant over the years. Some fluctuation is seen in the age group 60–69 years but without any real increase. The increase is however substantially in the age groups 70–79 years old where the incidence rate in 2013 was 4–5 times higher than in 1990. In the age group above 80 years, the incidence rate in 1990 was close to zero. This changed from approximately 1995 and the incidence in 2013 reached the same level as for the age group 70–79 years old i.e. close to 400

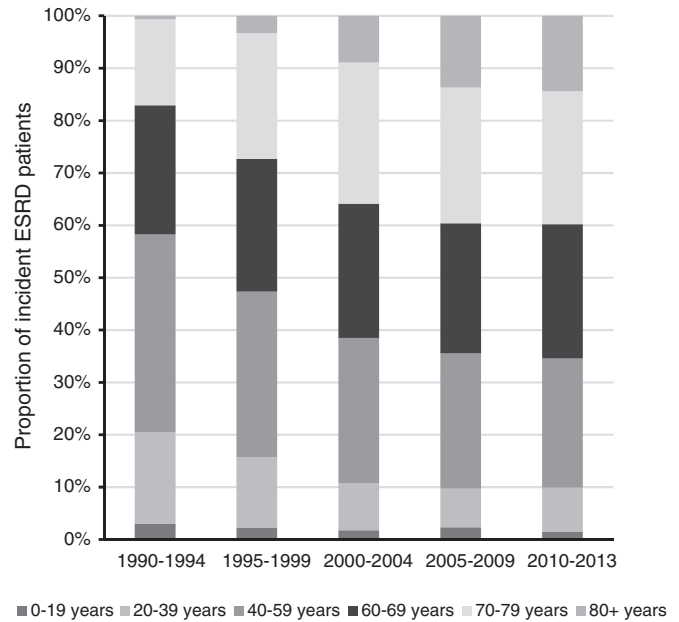


Fig. 2. Incidence of end stage renal failure (ESRD) treated with renal replacement therapy in Denmark by year and age group. Data for age groups were given in percentage of all incident ESRD patients. Data were by courtesy of the Danish Nephrology Registry.

PMP. Transforming these numbers from the Danish Renal Registry into proportions in different time periods it can be seen that the proportion of elderly incident ESRD patients is steadily increasing over the whole time span since 1990 (Fig. 2). Presently patients above 60 years of age account for approximately 65% of the incident RRT patients and the patients aged 70 years of age for approximately 40%. As in the US, the prevalence of ESRD patients in the Danish population has shown a remarkably increase from year 1990 in the age groups above 60 years (Fig. 3). Contrary to the US, the prevalence of ESRD in the elderly age groups in Denmark seems to have reached a plateau from year 2009 at

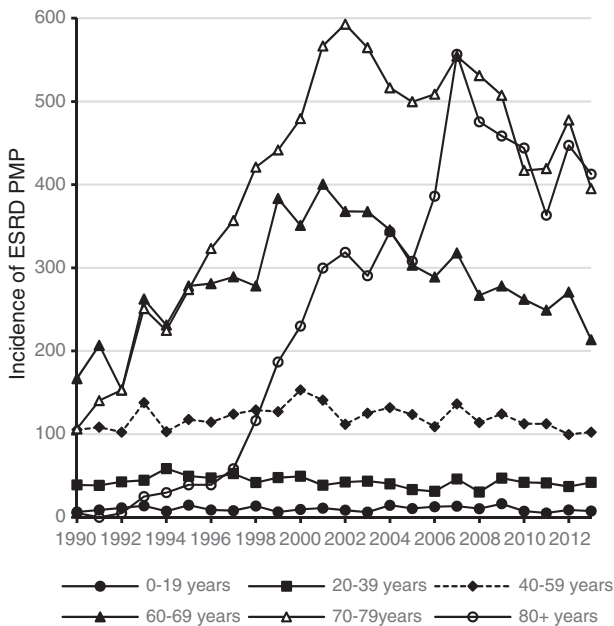


Fig. 1. Incidence of end stage renal failure (ESRD) treated with renal replacement therapy in Denmark by year and age group. Data were given as per million (age related) population (PMP). Data were by courtesy of the Danish Nephrology Registry.

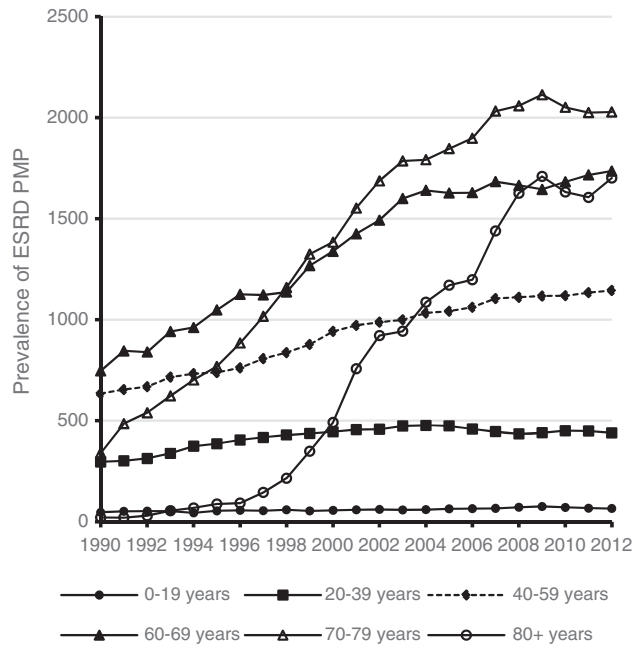


Fig. 3. Prevalence of end stage renal failure (ESRD) treated with renal replacement therapy in Denmark by year and age group. Data were given as per million (age related) population (PMP). Data were by courtesy of the Danish Nephrology Registry.

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