

End stage renal disease in El-Minia Governorate, Egypt: Data of the year 2007

Osama El-Minshawy¹*

¹ Department of Internal Medicine, El Minia University School of Medicine, El Minia, Egypt

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ABSTRACT

Background: Previously we conducted three cross sectional studies of epidemiology of end stage renal disease (ESRD) in El Minia Governorate.

Objectives: The aim of study was to ascertain prevalence, etiology and risk factors for ESRD during year 2007.

Patients and Methods: Patients on renal replacement therapy (RRT) in El-Minia Governorate in 2007 was 1615. They were offered to participate in this study, standardized questionnaire was completed including demographics, family history, risk factors for ESRD, environmental exposure to toxins, and causes of death.

Results: Prevalence of ESRD was 367 per million populations. Renal replacement therapy was hemodialysis in 1550 (96%), peritoneal dialysis in 32 (2%) and renal transplantation in 33 (2%) patients. Only 950 (59%) of the patients included in the study, mean age was 47 ± 13 years, median 43, range (18 to 80), males Vs females (64% Vs 36%), death rate was 182/1000.

Conclusion: This study indicates an annual increase of 59 new ESRD pmp patients than the study of year 2006.

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► Implication for health policy/practice/research/medical education:

Increasing in knowledge for treatment of difficult for refractory diseases like ESRD based on geographical locations can open new windows towards research in this field. Nephrologists and urologists can benefits from results of this interesting article.

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Background

In Egypt the prevalence of dialysis patients is presumed to be increasing (1, 2). Hemodialysis (HD) still represents the main mode for renal replacement therapy (RRT) for end stage renal disease (ESRD) in El Minia Governorate, 96.3% during the year 2002 (3), 97.2% during the year 2005 (4) and 97% during the year 2006 (5). Despite economic development continues in Egypt but up till now there is no national registry of ESRD in upper Egypt, this motivated us to record data of ESRD in our city annually as it is important to continue evaluation of new changes in HD status. In Syria, Aleppo city during the year 2006 the total population in the city was 2,431 million and the number of HD patients was 550 patients and thus prevalence is 226 per million population (pmp) (6) and in Yemen it is 320 pmp (7) and 600 pmp in Saudi Arabia (8). In Turkey the prevalence rate equals 312 pmp and the incidence rate is 52 pmp in 2002 (9). The total number of the popula-

tion in Syria in 2006 was about 19.17 million, so management of HD patients in Syria is considered a big medical problem because of the increased number of chronic diseases as hypertension (HTN) and diabetes mellitus (DM), (6). The prevalence of ESRD is increasing worldwide it is about 1500 pmp in the United States, and about 800 pmp in the European Union. In developing countries the prevalence may vary from less than 100 pmp in sub-Saharan to about 400 pmp in Latin America (8).

Objectives

Aim of this work was to describe prevalence, etiology and risk factors for ESRD in El-Minia Governorate during year 2007.

Patients and Methods

Patients on RRT in El-Minia Governorate in 2007 was 1615 they were offered to participate in this study. Only 950 patients (59%) agree to participate in this study and gave their verbal consent. Renal biopsy was done in 103 patients (11%) at some time in the course of their sickness. Standardized

* Corresponding author at: Osama El-Minshawy, Internal Medicine/Nephrology, El-Minia University School of Medicine, El-Minia, Egypt 61111. Tel: +20-105023250, Fax: +20-862324414.

E-mail address: ominshawy@yahoo.com

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questionnaires including demographics, family history, risk factors for ESRD, environmental exposure to toxins, work conditions, social history, and causes of death, HD patients were interviewed and questionnaires were filled. Thorough clinical examination was done for all patients. Collected data were manipulated using an IBM compatible PC and SPSS program for windows release 10 for statistical analysis.

Results

The study included 950 patients, that is 59% of the total number of ESRD patients in El-Minia governorate in 2007 the records of Ministry of Health were the source of these numbers. The estimated prevalence of ESRD in El-Minia governorate at the time of the study was 367 pmp. Prevalence of ESRD was 367 pmp. RRT modality was HD in 1550 (96%), PD in 32 (2%) and renal transplantation in 33 (2%) patients. Only 950 (59%) of the patients included in the study, mean age was 47 ± 13 years, range (18 to 80). males Vs females (64% Vs 36%), Etiology of ESRD is shown in Table 1. Death rate was 182/1000 all patients were dialyzed 3 times per week. Table 1 shows main causes of ESRD in El-Minia Governorate in comparison to US in 2007. Figure 1 demonstrates causes of ESRD in El-Minia Governorate during the year 2007, and Figure 2 shows causes of ESRD in El-Minia Governorate in comparison to U.S. Figure 3 indicates different etiology between Rural and Urban areas in El-Mina Governorat. Criteria used for Diagnosis of causes of ESRD was previously described (5). The prevalence of hypertension was higher in males than females and more prevalent in urban areas (13%) than rural areas (8%), while analgesic nephropathy was higher in females than males and more prevalent in urban areas (4%) than rural areas (2%). ESRD due to diabetic nephropathy was significantly higher in urban (8%) than in rural areas (5%), while those due to obstructive uropathy caused by schistosomiasis was significantly higher in rural (2.7%) than in urban areas (0.3%). Other causes of ESRD showed no significant differences between rural and urban areas.

Discussion

The prevalence rate of ESRD in El-Minia Governorate is increasing as it was 250 pmp in 2002 (3) to 260 pmp in 2005 (4) then 308 pmp in 2006 (5) eventually it becomes 367 pmp in 2007 according to the results of the present study. The majority of experts agree that 150 per million populations

Table 1. Main causes of ESRD in El-Minia Governorate in comparison to US in 2007

Cause	In El-Minia	In US ^a
Unknown	257 (27%)	3.7%
Hypertension	200 (21%)	24%
Chronic Glomerulonephritis	95 (10%)	1%
Obstructive Uropathy	105 (11%)	1%
Analgesic Nephropathy	57 (6%)	0.2%
Schistosomiasis	29 (3%)	-
Chronic Pyelonephritis	48 (5%)	0.8%
Diabetic Nephropathy	124 (13%)	36.8%
Others	35 (4%)	18.2%
Total	950 (100%)	485012 (100%)

^a Prevalence of ESRD in US, Data from USRDS.org

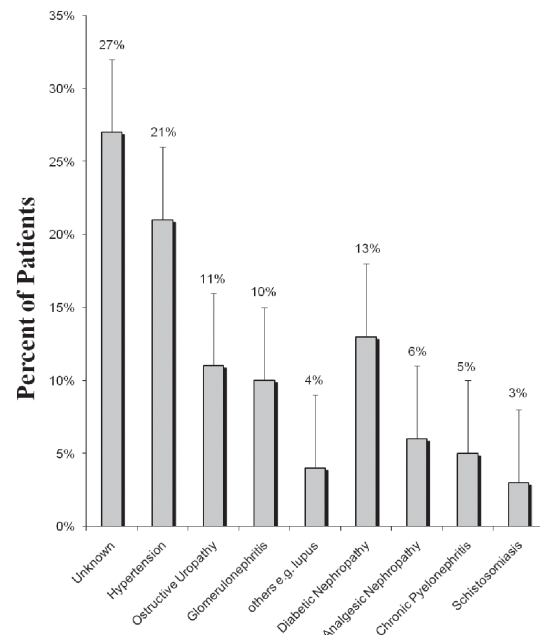


Figure 1. Causes of ESRD in El-Minia Governorate during the year 2007 (n=950)

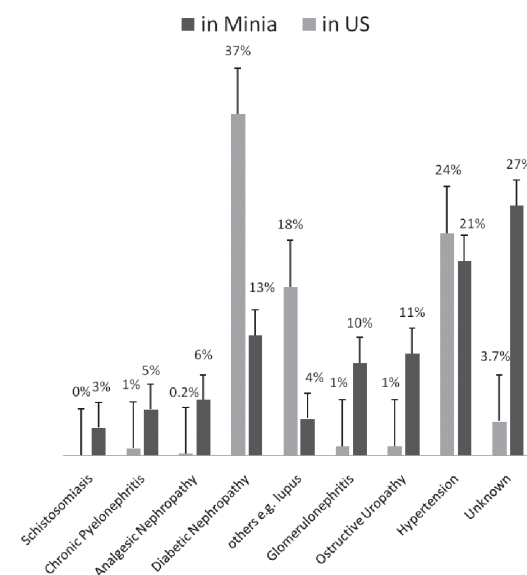


Figure 2. Causes of ESRD in El-Minia Governorate in comparison to US

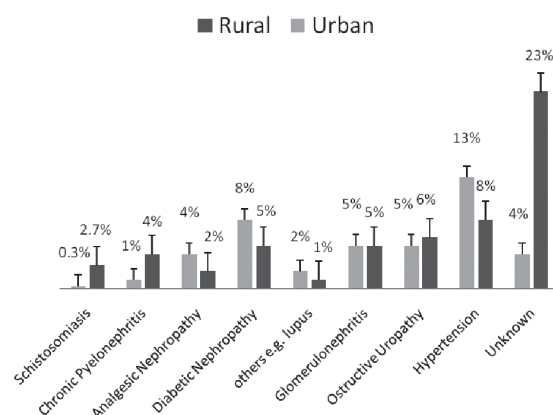


Figure 3. Different etiology between rural and urban areas in El-Mina Governorate

is the average incidence of ESRD in developing countries (8). In Syria, Aleppo city it is 226 pmp (6) and in Yemen it is 320 pmp (7) and 600 pmp in Saudi Arabia (8). In Turkey the prevalence rate equals 312 pmp (9). In France it is 1013 pm (10), in England it is 759 pmp (11), in Brazil it is 540 pmp (12). The high prevalence of ESRD in England and France despite low incidence may be attributed to good care facilities in the west European countries this may explain the cause of different prevalence between El-Minia Governorate and developed countries. Etiology of ESRD is unknown in 27% of patients in El-Minia Governorate in 2007 while the unknown etiology of ESRD in United States is 3.7% (13), this difference may be attributed to environmental factors as we previously described (14). Figure 2 illustrates the results of the current study that epidemiology of ESRD in El-Minia Governorate is different from epidemiology of ESRD in the United States. In the current study hypertension was responsible about 21% of causes of ESRD while it was responsible about 17% of causes of ESRD in El-Minia Governorate during the year 2002 (3) and 20% of causes in year 2006 (5), i.e. hypertension as a cause of ESRD is increasing in our city. In Iran the most common cause of ESRD among HD patients was hypertension 30.5% (15), in the United States 24% of causes of ESRD was due to hypertension was the most common cause of ESRD (13). In the United States the etiology of ESRD is analgesic Nephropathy in only 0.2% (13) while it is 6% in the current study which reflects awareness of the people themselves in the United States about the risk of analgesics abuse. Chronic glomerulonephritis is only 1% in the United States while it is 10% in the current study which may mirror high prevalence of bacterial, viral and parasitic infection in El-Minia Governorate as the current study illustrated that Schistosomiasis is responsible about 3% of the etiology of ESRD in El-Minia Governorate while in the United States they have no Schistosomiasis at all (13). Diabetic nephropathy as a cause of ESRD in El-Minia Governorate is increasing as it constituted 5% causes of ESRD in year 2004 and year 2005 and becomes 8% in year 2006 (3) eventually becomes responsible about 13% of causes of ESRD according to the results of the current study. The prevalence of diabetic nephropathy is estimated to be 14%-16% in South Africa, 23.8% in Zambia, 9% in Sudan, and 6.1% in Ethiopia (16). Udayaraj et al., (17) reported that in England Diabetes mellitus seen in 28.9% in patients with under RRT while Malekmakan et al. (15) reported that diabetes mellitus constitutes 30.1% of the causes of chronic renal failure in Iranian HD patients. In Qatar Diabetic nephropathy is the commonest cause of end stage kidney disease 48% (18). In the current study mean age was 47 ± 13 years, median 43, while mean age was 46 ± 13 years, median 43, in year 2006 (5). In 2005 the mean age of the patients was 44.6 ± 13.7 years (4), this increase in mean age of the patients may reflect better care of HD patients in El-Minia Governorate. In France Couchoud et al. (10) reported that the median age of patients under RRT is 70.4 years this marked increase in median age in patients in the European countries may reflect their better ESRD care. RRT modality was HD in 1550 (96%), PD in 32 (2%) and renal transplantation in 33 (2%) patients. In France for the year 2007 Couchoud et al. (10) reported 31056 (55%) patient living on dialysis while 25699 (45%) patients were living with a functioning graft. This low rate of kidney transplant in El-Minia Governorate despite the number of patients with ESRD who are in need for kidney transplantation is increasing may be attributed to lack of response to donation owing to fear or illiteracy. The

percentage of peritoneal dialysis patients in China is 18% in 2005 (19), and 23% in Latin America (20) but in El-Minia Governorate only 32 patients (2%) are living on peritoneal. Death rate in the current study is 182/1000 while it was 190/1000 in 2006 (5) while in 2005 it was 210/1000 (4). This decrease may reflect better care for patients with ESRD and more efficient dialysis. A national registry of ESRD in upper Egypt is highly recommended.

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Conflict of interest

None declared.

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