

## Social Trends of Living Renal Donors in Libya

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### ABSTRACT

Renal transplantation is the best treatment for end-stage renal disease. We conducted this study to assess the epidemiological patterns and social trends in our living related renal donors pool in Libya. The medical records of 461 living related renal donors were evaluated from August, 2004 to January, 2010. Of the 461 living related donors studied, 266 (57.7%) were operated. There were 381 (82.6%) men and 80 (17.4%) women aged from 18 to 63 (mean: 32.6) years. Most of the donors aged between 20 and 39. The most common donor recipient relationship was sibling-sibling (n=157; 59.1%) with a male:female ratio of 2.6:1. The reported frequencies from our center differed with those from other countries. That might be due to cultural issues.

**KEYWORDS:** Living related donor; kidneys; CT angiography; Nephrectomy

### INTRODUCTION

Renal transplantation is the best treatment for end-stage renal disease. Libyan national organ transplant program was started in August, 2004 and has been an active program for living-related kidney donation. We review the epidemiological patterns and social trends in the living related renal donors' pool.

### METHODS:

Four hundred and sixty-one living related renal donors were evaluated from August, 2004 to January, 2010. Their records and operative notes were retrospectively analyzed for 1) whether donors were operated; 2) type of pre-operative renal angiography; 3) right or left nephrectomy; 4) laparoscopic or open nephrectomy; 5) age and gender; and 6) relationship with the recipient. The reasons for donors who were not operated were also analyzed. Statisti-

cal analysis was performed using SPSS software. A p value <0.05 was considered statistically significant.

### RESULTS:

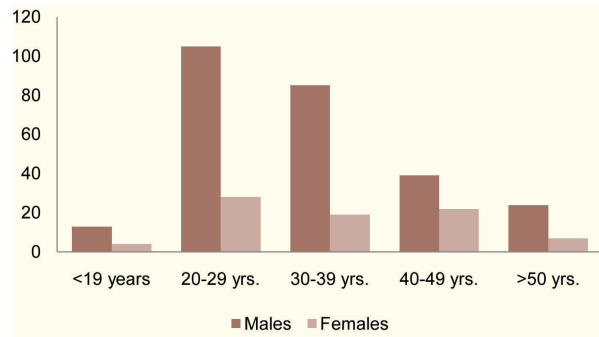
A total of 461 living related donors were included in the study out of which 266 (57.7%) were operated. There were 381 (82.6%) men and 80 (17.4%) women aged between 18 and 63 (mean age: 32.6) years. Four hundred and thirty-four (94.1%) donors underwent CT angiography while 27 (5.9%) underwent MR angiography (p=0.01); 224 (84.2%) underwent left nephrectomy out of which 216 (81.2%) underwent open nephrectomy and 8 (3%) underwent laparoscopic nephrectomy. The remaining 42 (15.8%) donors underwent open right nephrectomy (p=0.001). One hundred and ninety-five (42.3%) donors were not selected for donation. Difficult renal vascular anatomy was the main reason for non-selection seen in 95% of donors. There were 13 (4.9%) teenaged donors while 24 (9%) aged ≥50 years. Most (71.4%) of the donors were aged between 20 and 39 years (p=0.01). The majority of female

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donors aged from 20 to 29 years (n=28; 35%); 22 (27.5%) aged between 40 and 49 years (Fig 1). The most common donor-recipient relationship was sibling-to-sibling (n=157; 59.1%) (p=0.021) with male:female ratio of 2.6:1. There were 81 (30.5%) brother-to-brother donations and 18 (6.8%) sister-to-sister donations (p=0.01). Fifteen percent (n=40) of the cases involved parent-to-child donation while 22.2% (n=59) were child-to-parent donation (p=0.03). There was higher (n=46; 17.3%) incidence of donations from son to parents than daughter to parents (n=13; 4.9%) (p=0.001). Higher incidence (n=106; 39.9%) was also seen in the instance of a sibling donating to a brother than a sister (n=51; 19.2%) (p=0.02). Mother-to-child donation was more common (n=25; 9.4%) than father-to-child donation (n=15; 5.6%) (p=0.03). There was almost equal incidence of a child donating either to father (n=31; 11.6%) or mother (n=28; 10.6%) (p=0.07). The frequency of wife-to-husband donation (n=4; 1.5%) was more than husband-to-wife donation (n=2; 0.7%) (p=0.03). Niece-to-uncle donation (n=3; 1.1%) was also more frequent than uncle-to-niece donation (n=1) (Fig 2).

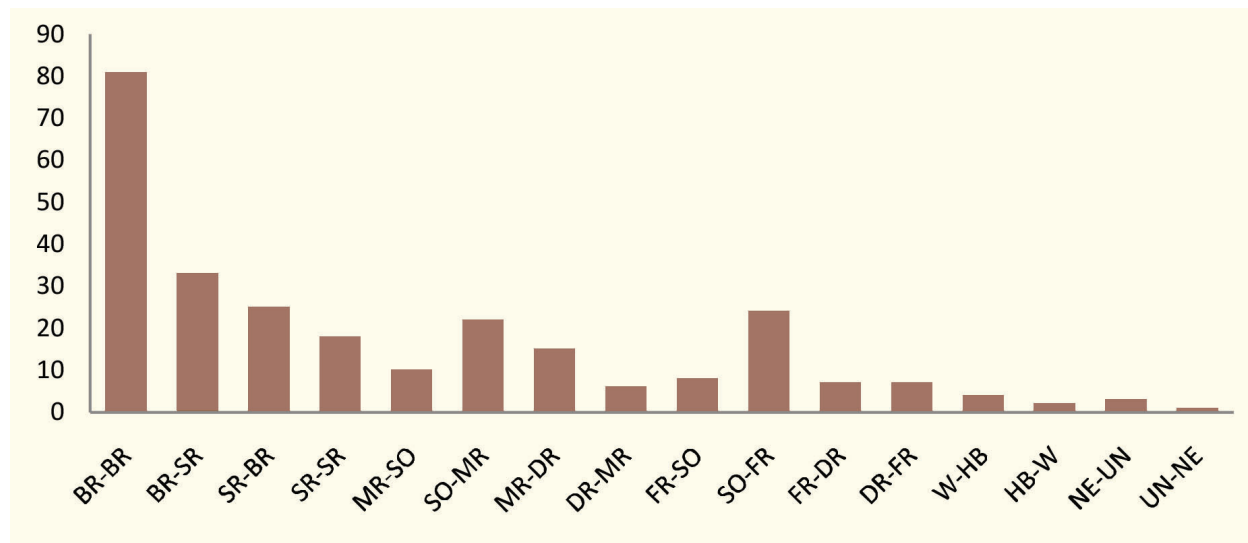
**DISCUSSION:**

Kidney transplantation offers patients with end-stage renal disease the greatest potential



**Figure 1:** Age distribution of donors.

for increased longevity and enhanced quality of life. The first successful renal transplantation in the Arab world took place in Jordan in 1972. Many Arab countries followed suite in the 1970's and 1980's, starting their living-related kidney transplantation programs. Kidney transplantation program in Libya was started in August 2004 with living-related donation only. Libya has a population of six million but has one renal transplant center. The establishment of an appropriate National Transplantation Program resulted in an increase in the transplantations in the region and the acceptance of Libya into the Middle East Society of Organ Transplantation (MESOT). This is in contrast to the transplantation program in Cuba where 90% of grafts are from cadaveric donors [1]. Although the greatest numbers of kidney transplants on a yearly basis are performed in the United States, Saudi Arabia with 32 procedures per million popu-



**Figure 2:** Donor-Recipient relationship.

BR=Brother;SR=Sister;MR=Mother;SO=Son;DR=Daughter;FR=Father;W=Wife; HB=Husband;NE=Niece;UN=Uncle

lation has the highest reported living kidney donor transplant followed by Jordan, Iceland, Iran and the United States [2]. In our series, sibling-to-sibling donation was the commonest relationship followed by offspring-to-parent donation. In a series published in 2008, it was shown that in the United States, parent-to-child donations have declined by 33% since 2005 [3]. In the meantime, unrelated living donation transplants have shown an increasing trend until 2005 [3]. In our series, the frequency of parent-to-child donations was almost half of that of child-to-parent donations. Furthermore, the frequency of son donating to parents was three times than that of daughters. In the case of sibling-to-sibling donation, there was two-fold increase in donation to brothers than sisters. The majority of donors in our series were less than 40 years of age (mean age: 32.6). This is in agreement with the results published by Martinez, *et al*, in 2006 [4]. In our series, three-fourths of the donors were male, which is in contrast to the results published by Sakhuja, *et al*, who found that two-thirds of the donors were females [5]. This could be attributed to cultural diversity between the Arab world and Indian subcontinent. Furthermore, in their study, spouses accounted for 20% of donors from within families while in our study, it was just one-tenth. In the study published by Pretagostini, *et al*, in 2004, 66% of transplants were from living related donors and 28% donors were spouses [6]. This is in contrast to our results where we had 96.3% living related donors and just 2.2% were spouses. We attribute this disparity to the social differences prevalent between the Arab world and the Western world. In Indian subcontinent, there is a conspicuous gender

bias with female donors donating kidneys for their male relatives [7] in stark contrast to the Middle East countries. In our study, CT angiography was the preferred technique for pre-operative donor evaluation as in all other reported series.

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