

# Spouses as kidney donors in India: Trends and outcomes

In India, only about 10% of end-stage renal disease patients ever receive any form of renal replacement therapy and only 2% undergo kidney transplantation.<sup>[1]</sup> As deceased organ donation is still in its infancy here, living donor transplants account for the large majority of transplants. Postgraduate Institute of Medical Education and Research, Chandigarh has one of the oldest renal transplant programs in India. Over last 10 years, we have seen a striking change in the spectrum of living renal donors here [Table 1]. Whereas spouses constituted just 17.2% of all donors between 2002 and 2006, the percentage has now almost doubled to 34% with spousal and parental donors being equally common. The percentage of related donors (parents, siblings, and offspring) decreased from 73.6% in 2002-06 to 48.4% in 2012-13 mainly due to a decrease in sibling donors. In addition, the percentage of deceased donors has increased from 0.6% to 8%. At the Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, spouse donors accounted for only 5% of living donor transplants till 1998 but have now increased to 34.3% [Table 2].<sup>[2]</sup> At the All India Institute of Medical Sciences, New Delhi, spouse donors accounted for 27.7% of living donor transplants over the last decade.

Spouse donors have always been looked upon as a potential living donor source to fulfil the unmet need of renal donors across the world.<sup>[3,4]</sup> Donating a kidney to a spouse has been associated with great satisfaction and improved interpersonal relationships in the family as spouses are usually of the same age group and live together.<sup>[5]</sup> Though spousal donation has increased at our center, this increase has taken place at the cost of a decrease in living related donation. This change should be interpreted in light of changing sociocultural and economic circumstances. Traditionally, spouses especially wives have not been preferred as living renal donors in Indian scenario as they could easily be coerced under the prevailing social circumstances.<sup>[6]</sup> With most of the wives

**Table 1: Types of donor during different time periods at postgraduate institute of medical education and research, chandigarh**

Type of donor	2002-2006 (n=554)*	2009-2011 (n=498)*	2012-April 2013 (n=250)*
Parents	222 (40.3)	163 (32.7)	87 (34.8)
Siblings	152 (27.7)	88 (17.7)	27 (10.8)
Spouses	95 (17.2)	165 (33.1)	85 (34.0)
Offspring	46 (5.6)	14 (2.8)	7 (2.8)
Unrelated	31 (8.3)	42 (8.4)	24 (9.6)
Cadaver	3 (0.6)	26 (5.2)	20 (8)

\*Figures in parentheses are percentages of total during respective time periods

**Table 2: Females as spousal donors in India**

Study	Time period	No. of living donor transplants	No. of spousal transplants (%)	Percentage of wives in spousal transplants
Avula <i>et al.</i> , (1998) <sup>#[2]</sup>	Not reported	431	Reported as 5%	Not reported
Mukherjee <i>et al.</i> , (2006) <sup>@[12]</sup>	1999-2003	419	41 (9.8)	Not reported
Kute <i>et al.</i> , (2012) <sup>§[11]</sup>	1998-2009	1523	337 (22.1)	92.6
Bhowmik <i>et al.</i> , (2013) <sup>^</sup>	2003-2013	1155	320 (27.7)	92.5
Prasad <i>et al.</i> , (2013) <sup>#</sup>	2004-2013	884	303 (34.3)	98.4

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being housewives especially in rural and underprivileged sections and the husband being the main or only bread earner in the family, it is not difficult to imagine that circumstances can force them to become unwilling renal donors for their husbands even when blood group compatible living-related donors are available in the husband's family. In fact, nephrologists need to take special care to rule out coercion whenever such situations arise.<sup>[6]</sup> We have, therefore, followed a policy of accepting spouse donors only in case no related donors were available. However, things are now rapidly changing on the social front in view of economic development and urbanization. The traditional joint family system where females used to be just home managers is being replaced by a nuclear family system where both husband and wife are employed and share all responsibilities. This in turn has shifted the social equations in such a manner that though parents, siblings, and offspring are biologically related, it is only the spouse who may be motivated to become a donor if need arises. Whereas age may be a

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limiting factor for parents and offspring, siblings are often reluctant to donate because of social insecurity and other pressures. In case of married siblings, their spouses or in-laws may be an obstacle. The impact of socioeconomic factors on type of living renal donor has also been reported from the developed world. In the United Kingdom, spouses were less likely to be donors if the families belonged to a lower socioeconomic class.<sup>[7]</sup>

In our data, wives constitute as many as about 87% of all spousal donors. This trend is also evident in data from other centers in India [Table 2]. In one of the largest series in the United States, wives as renal donors were twice as common compared with husbands.<sup>[4]</sup> Higher incidence of kidney disease in men, fear of losing the earning male member, and perception of renal donation as an extension of responsibility toward family in females have been suggested as reasons for female preponderance among living donors.<sup>[8]</sup> Zimmerman *et al.*,<sup>[9]</sup> showed that females constituted 90% of spousal donors and 58.1% of first-degree relative-donors. They showed that it was primarily a higher rate of donation among females rather than any medical contraindication in males which was responsible for this. They suggested that social, economic, and gender attitude differences might be responsible.<sup>[9]</sup>

The outcomes of renal transplants with spouses as donors are better than deceased donor transplants and comparable to living-related donor transplants and other types of living unrelated donor transplants.<sup>[4,10-13]</sup> In an analysis of 117,239 renal transplants done in the United States over 12 years, 5-year graft survival rates and graft half-lives of 75% and 14 years, 72% and 13 years, 74% and 12 years, and 62% and 9 years were reported for live spousal donation, live unrelated donation, parent donation, and deceased donation, respectively.<sup>[4]</sup> Living unrelated graft outcomes were reported to be significantly better than cadaver graft outcomes.<sup>[4]</sup> Good outcomes after spousal donation have been reported from India also. In one of the largest series of 337 spouse donor transplants, overall graft and patient survival (mean follow up  $4.47 \pm 3.03$  years) were reported to be 80.1% and 75.9%, respectively.<sup>[11]</sup> When compared with living related ( $n = 969$ ) and living unrelated ( $n = 217$ ) renal transplants, overall graft survival was not significantly different.<sup>[11]</sup> However, overall patient survival in spousal donation group was significantly inferior to living-related group (75.9% and 83.9%, respectively).<sup>[11]</sup> The rates of acute rejection in spouse, living-related, and other living unrelated groups were 16.6%, 15.8%, and 17%, respectively.<sup>[11]</sup> In a study published in this issue of the journal, short-term outcomes in spouse donor transplants were better than those with related donors. However, this

may have been at least partly because of the greater use of induction agents in the spouse donor transplants.<sup>[14]</sup>

Given the increasing number of spouse donor transplants, it is reassuring to see that outcomes of such transplants are not inferior to those of related donor transplants. However, efforts should continue to be made to motivate all potential-related donors before a spouse donor is accepted.

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