



RENAL TRANSPLANTATION
ORIGINAL ARTICLE

The effect of body mass index at the time of donation on postoperative and remote consequences of nephrectomy in 189 living-related kidney donors



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KEYWORDS

Kidney;
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ABBREVIATION

BMI, body mass index

Abstract Objective: To analyse the effects of baseline body mass index (BMI) on the postoperative and remote consequences of nephrectomy in living kidney donors, as body weight is conventionally used as an exclusion criterion for kidney donation and a BMI of $< 35 \text{ kg/m}^2$ is often required.

Patients and methods: We retrospectively studied 189 living-related kidney donors who had their nephrectomy between 1986 and 2009 in our urology department. We recorded the BMI at the time of donation, and analysed variables after surgery, and clinico-biological factors remotely. The effect of the initial BMI after surgery and much later after nephrectomy was assessed.

Results: The mean follow-up was 9.28 years. The mean (range) BMI at the time of donation was $26.5 (18.5\text{--}41.1) \text{ kg/m}^2$; 33% of donors were overweight (BMI 25–30) and 21% were obese (≥ 30), with 10.5% having a BMI of $> 35 \text{ kg/m}^2$. The duration of hospitalisation was not related to the BMI. There was no significant difference between the mean BMI of donors with a simple postoperative history and donors who had complications after surgery. Among obese donors, only 7.7% had a complication, which was a surgical-site infection in all cases. The baseline

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BMI was higher among donors who maintained normal renal function and no proteinuria than in donors with impaired renal function and/or proteinuria; the difference was not significant. The occurrence of hypertension or diabetes was independent of baseline BMI. Donors with dyslipidaemia had no significantly greater baseline BMI than those with no dyslipidaemia.

Conclusion: The BMI at the time of kidney donation does not seem to influence the short- or long-term consequences of nephrectomy in living donors.

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Introduction

Living-donor kidney transplantation is currently considered the best treatment for end-stage kidney failure. The success not only depends on its results in the recipient, with a long graft survival time expected, but also on the safety of nephrectomy in the donors. To ensure this safety, the selection of potential donors must be rigorous. Even if the donor-selection criteria are not standardised, they have been the subject of international recommendations in a consensus conference held in Amsterdam in 2004 [1]. A body mass index (BMI) of $< 35 \text{ kg/m}^2$ is one of the key elements required to accept a potential donor. The increasing prevalence of obesity therefore threatens the availability of living donors [2].

The aim of the present study was to assess the effects of the baseline BMI on the postoperative and remote consequences of nephrectomy in living donors.

Patients and methods

We conducted a retrospective study of 189 living-related kidney donors who had their nephrectomy between 1986 and 2009 in our urology department. We recorded the BMI at the time of donation and analysed variables after surgery, specifying the postoperative course and duration of hospital stay. Clinico-biological variables were assessed remotely, including renal function (serum creatinine level and creatinine clearance), proteinuria, hypertension, diabetes and dyslipidaemia. The effect of the baseline BMI during the perioperative period and later after nephrectomy was then assessed. All data were analysed using standard statistical software and the results considered statistically significant at $P < 0.01$.

Results

The epidemiological characteristics of the donors are summarised in Table 1. The mean (SD, range) age was 41.8 (12.1, 20–67), the body mass at the time of donation was 70.9 (13.3, 42–108) kg, the BMI was 26.5 (4.8, 18.5–41.1) kg/m^2 and 33% of donors were overweight (BMI 25– < 30) and 21% were obese (BMI $\geq 30 \text{ kg/m}^2$).

Table 1 The epidemiological characteristics of the donors.

Variable	%
Gender	
Male	59
Female	41
Marital status	
Single	61
Married	33
Relationship to the recipient	
Ascendants	42
Descendants	1
Collaterals	46
Spouses	9
Educational grade	
Illiterate	27
Primary school	26
High school	23
College	14
Imprecise	10
Smoking	
Smokers	28
Non-smokers	60
Unspecified	12

All donors were operated by lumbotomy, and the mean (SD, range) duration of hospitalisation was 5.5 (3, 3–28) days. It was 5.6 days for donors with a BMI of $< 25 \text{ kg/m}^2$, 4.9 days for overweight donors and 5.3 days for obese donors. There was no statistical correlation between the baseline BMI and duration of hospital stay ($P = 0.57$).

Nineteen donors (10%) had postoperative complications, and their mean baseline BMI was 25.6 kg/m^2 . The mean baseline BMI of the 170 donors with a simple postoperative course was 26.6 kg/m^2 , and the difference was not significant between the groups of donors with and without complications ($P = 0.48$).

Among obese donors, 93% had a simple postoperative course; only 7% of obese donors had a postoperative complication, which was a surgical-site infection in all.

The mean (SD, range) follow-up of the donors was 9.2 (6.3, 0.6–24.8) years. Donors who maintained normal renal function (creatinine clearance $> 90 \text{ mL/min}$) during the follow-up and who did not develop proteinuria had a mean baseline BMI of 26.8 kg/m^2 . However, the mean baseline BMI of donors with impaired renal function and/or proteinuria was

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