LETTER TO THE EDITORS

Use of donors with genitourinary malignancies for liver transplantation: a calculated risk?

Daniele Pezzati[1], Davide Ghinolfi[1], Quirino Lai[2], Giulia Cirillo[1], Erion Rreka[1], Nicolo Roffi[1], Paola Carrai[1], Andrea Ringressi[3], Paolo De Simone[1] & Franco Filipponi[1]

1 Hepatobiliary Surgery and Liver Transplantation Unit, University of Pisa Medical School Hospital, Pisa, Italy
2 Hepatobiliary Surgery and Liver Transplantation Unit, Sapienza University of Rome, Rome, Italy
3 Division of Urology, IRCCS San Matteo Hospital, Pavia, Italy
E-mail: danypez@hotmail.it

Dear Editor,

Liver transplantation (LT) is standard of care for end-stage liver disease. Organ shortage still remains an unsolved problem and is leading the transplant community to find new strategies to increase the donors pool. Donors with genitourinary malignancies (GUM) detected at the moment of procurement have been recently considered with this intent, although accurate balancing between the risks of donor-transmitted cancer (DTC) and recipient death while awaiting in the list is required. The incidence of GUM increases with age, and incidental prostatic carcinoma (PC) has been reported in up to 20% of donors older than 50 years [1]. Incidental renal cell carcinoma (RCC) is less common, being generally observed as a solitary lesion limited to one kidney [2]. Recently, several guidelines have been issued to identify donors with GUM with low-to-moderate risk of tumour transmission (Table 1A) [3–5].

We here report our experience with LT from donors affected with GUM. Out of 1041 LT performed between January 2005 and December 2014 at our centre, 84 (8.0%) were from donors with incidental GUM. All malignancies were diagnosed at the time of procurement as per the standard donor evaluation work-up. Both donor assessment and decision to use these grafts were in compliance with the guidelines of the Italian National Transplant Centre (Centro Nazionale Trapianti) and recipients were asked to provide an informed consent as indicated elsewhere [5]. Forty-three donors (4.1%) were affected with incidental PC, and 41 (3.9%) with RCC (none >2 cm). The donor and tumour characteristics of interest are summarized in detailed in Table 1B. The Gleason score was >6 in 25.5% of donors with PC ($n = 11$), while RCC was >1 cm in 12.2% of cases ($n = 5$), multifocal in 14.6% ($n = 6$) and bilateral in 4.9% ($n = 2$).

No case of DTC was observed at a median post-transplant patient and graft survivals of 5.6 and 5.5 years, respectively. A total of 22.6% of patients ($n = 19$) died due to: HCV recurrence in 5.9% ($n = 5$), sepsis in 5.9% ($n = 5$), alcohol relapse in 2.4% ($n = 2$), hepatocellular cancer recurrence in 2.4% ($n = 2$), post-transplant lympho-proliferative disorder in 2.4% ($n = 2$) and oesophageal carcinoma, ischaemic-type biliary lesions, and stroke in 1.2% ($n = 1$) each.

De novo malignancies were observed in 9.5% ($n = 8$) at latest follow-up, and 5.9% of patients ($n = 5$) are still alive after colonic adenocarcinoma ($n = 1$), bladder carcinoma ($n = 1$), tonsillary carcinoma ($n = 1$), squamous carcinoma of the skin ($n = 1$) and renal cell carcinoma ($n = 1$). This latter was transplanted from a donor with PC. All malignancies were histologically confirmed.

Based on our experience, donors with incidental GUM are a valuable resource in view of increasing the available donor pool and contributed to 8% of liver grafts at our centre. Due to their relatively low metastatic potential, donors with RCC and PC should not be discarded *per se* in the setting of a life-saving transplant [6]. Careful evaluation is mandatory to rule out metastatic diseases before and during the procurement [7]. Issues to be further explored concern the risk of cancer transmission from donors with small, multifocal or bilateral RCC to help clinicians in their decision-making algorithm.

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Table 1. (A) International guidelines for the management of renal and prostatic cancers detected in organ donors. (B) Cancer type divided by class of risk, number of cases, histotype or Gleason score, donor age.

(A)

Risk	UNOS/OPTN Disease Transmission Advisory Committee [1]	Council of Europe [2]	Italian National Transplant Center 2015 guidelines [3]
RCC			
Minimal (<0.1%)	(Resected) solitary ≤1 cm FS1-2	Solitary <1 cm FS1-2	Solitary <4 cm (T1a) No-standard donor with negligible risk
Low (0.1–1%)	(Resected) solitary >1 but ≤2.5 cm FS1-2	Solitary 1–4 cm FS1-2	
Intermediate (1–10%)	(Resected) solitary T1b (4–7 cm) FS1-2	Solitary 4–7 cm FS1-2	–
High (>10%)	(Resected) solitary >7 cm or stage II–IV	Solitary >7 cm FS1-2 or FS3-4	
PC			
Minimal (<0.1%)	No classification	Intraprostatic GS ≤6	GS ≤6 no-standard donor with negligible risk
Low-to-intermediate (0.1–10%)		Intraprostatic GS 7	GS >6 no-standard donor with acceptable risk
High (>10%)		Intraprostatic GS >7	
Unacceptable		Extra-prostatic	–

(B)

Cancer type	Donor class of risk	Number of cases	Hystotype/gleason score (number of cases)	Donors <60 y/o (overall *n* = 373)	Donors 60–69 y/o (overall *n* = 209)	Donors 70–79 y/o (overall *n* = 303)	Donors >80 y/o (overall *n* = 156)
Renal cell carcinoma	Minimal (<0.1%)	36	Clear cell: 25 Papillary: 11	13 (3.48%)	7 (3.35%)	10 (3.3%)	6 (3.84%)
	Low (0.1–1%)	5	Clear cell: 1 Chromophobe: 3 Papillary: 1	1 (0.26%)	2 (0.95%)	1 (0.33%)	1 (0.64%)
	Intermediate (1–10%)	–	–	–	–	–	–
	High (>10)	–	–	–	–	–	–
Prostatic carcinoma	Minimal (<0.1%)	32	Gleason score 4: 6 Gleason score 5: 1 Gleason score 6: 25	1 (0.26%)	6 (2.87%)	17 (5.61%)	8 (5.12%)
	Low/intermediate (0.1–10%)	5	Gleason score 7: 5	–	–	4 (1.32%)	1 (0.64%)
	High (>10%)	6	Gleason score 8: 3 Gleason score 9: 3	–	4 (1.91%)	1 (0.33%)	1 (0.64%)

UNOS, United Network for Organ Sharing; OPTN, Organ Procurement and Transplantation Network; RCC, renal cell carcinoma; FS, Fuhrman Score; PC, prostatic carcinoma; GS, Gleason Score.

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Conflicts of interest

None of the authors has a conflict of interest to declare.

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