

Simultaneous heart-liver and heart-kidney transplantation: a case series from the University Hospital Centre Zagreb

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Introduction: Dual organ transplantation, such as heart-liver or heart-kidney, is a rare but essential option for patients with multi-organ failure. While outcomes for single-organ transplants are well-documented, reports of dual transplants are limited.¹⁻³ This case series presents two heart-liver and one heart-kidney transplant cases to provide insights into clinical outcomes and management. *Aim:* To analyze the clinical characteristics, clinical course, perioperative management, and post-transplant outcomes of patients undergoing simultaneous heart-liver and heart-kidney transplantation at the University Hospital Centre (UHC) Zagreb, Croatia.

Case series: Three patients underwent dual organ transplantation between January 2023 and September 2024. Two patients received heart-liver transplants for heart failure due to hereditary transthyretin amyloidosis, while one patient underwent heart-kidney transplantation for end-stage heart failure secondary to ischemic heart disease and renal failure associated with polycystic kidney disease. Surgical techniques and postoperative care were tailored to each patient's clinical profile. The first patient, a 49-year-old male who underwent heart-liver transplantation, has a 20-month follow-up. His course included early liver graft rejection, successfully treated with pulse corticosteroids. Heart function remains preserved, and he initially had transient, low-intensity donor-specific antibodies (DSAs). The second patient, a 52-year-old male with heart-liver transplantation, has a one-month follow-up with preserved organ function, no rejection, and no DSAs. The third patient, a 54-year-old male who underwent heart-kidney transplantation, has a one-month follow-up complicated by prolonged postoperative peritoneal drainage, but both grafts are functioning well, with no rejection or DSAs (**Table 1**).

Conclusion: Dual organ transplantation is a viable option in selected patients with favorable outcomes when managed appropriately. This case series from the UHC Zagreb highlights the importance of individualized care and follow-up to optimize survival and graft function. Further studies are needed to standardize protocols for these complex procedures.

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TABLE 1. Patient characteristics in dual-organ transplantation.

Patient characteristics		CASE 1	CASE 2	CASE 3
Age, sex		49, male	52, male	54, male
Follow up		20 months	1 month	1 month
Transplanted organs		Heart and liver	Heart and liver	Heart and kidney
Etiology of primary organ failure		Hereditary TTR amyloidosis	Hereditary TTR amyloidosis	Ischemic heart disease Polycystic kidney disease
Pretransplant laboratory values	Erythrocytes	4.38 x 10 ¹² /L	4.02 x 10 ¹² /L	3.83 x 10 ¹² /L
	Hemoglobin	142 g/L	128 g/L	109 g/L
	Leukocytes	4.2 x 10 ⁹ /L	6.1 x 10 ⁹ /L	7.6 x 10 ⁹ /L
	Platelets	170 x 10 ⁹ /L	196 x 10 ⁹ /L	129 x 10 ⁹ /L
	Total bilirubin	27 µmol/L	15 µmol/L	28 µmol/L
	PV-INR	1.55	1.06	1.04
	AST	43 U/L	46 U/L	68 U/L
	ALT	18 U/L	93 U/L	21 U/L
	GGT	97 U/L	33 U/L	14 U/L
	ALP	148 U/L	73 U/L	48 U/L
	BUN	10.5 mmol/L	8.5 mmol/L	16.9 mmol/L
	Creatinine	114 µmol/L	113 µmol/L	243 µmol/L
	eGFR	66 mL/min/1,73 m ²	64 mL/min/1,73 m ²	25 mL/min/1,73 m ²
NT-proBNP	6759 ng/L	5407 ng/L	4101 ng/L	
Troponin I	172.7 ng/L	105.5 ng/L	37.0 ng/L	
Posttransplant events	Surgical	Pericardial effusion	Pericardial effusion	Prolonged peritoneal drainage Pericardial effusion
	Infective	None	None	None
	Neoplastic	None	None	None
Organ rejection		Early cellular liver graft rejection	None	None
Graft organ function		Both preserved	Both preserved	Both preserved
Donor-specific antibodies		Transient low intensity	None	None

LITERATURE

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