

<b>IDENTIFICATION STUDY</b>	
EU reference n°:	2020-005412-21
Study title:	Effect of dobutamine on hepatic blood flow during goal-directed hemodynamic therapy [DOBU-Whipple]
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### **Conclusion:**

DOBU enhanced CO through dose-dependent increase in dPmax and HR, boosting total HBF and PVF. This response is mediated via both indirect effect of elevated CO and a direct effect splanchnic circulation. The effect on HAF is more complex with a reduction in HAF, possible due to the HABR as the most prominent factor. These findings underscore the impact of an inodilator like DOBU on HBF and the need to also consider regional blood flow effects in the perioperative haemodynamic management.

**Table 1:** Patient characteristics

Variable	Total group (n = 30)	Somatostatin	
		Yes (n = 10)	No (n = 20)
Female / Male ratio	16 / 14	7 / 3	9 / 11
Age (years)	66 (13)	61 (15)	68 (12)
Height (cm)	167 (14)	168 (9)	166 (15)
Weight (kg)	68 (13)	70 (11)	68 (15)
BMI	24.8 (3.7)	25.7 (3.1)	24.1 (3.1)
Systolic BP (mmHg)	134 (18)	132 (17)	135 (18)
Diastolic BP (mmHg)	84 (9)	87 (7)	83 (7)
MAP (mmHg)	101 (12)	102 (5)	101 (13)
HR (bpm)	81 (19)	76 (15)	84 (18)
ASA II / III	17 / 13	7 / 3	10 / 10
Smoker (F / N / Y)	15 / 10 / 5	5 / 3 / 2	10 / 7 / 3
Beta-blocking agent (Y / N)	8 / 22	4 / 6	4 / 16
ACE-inhibitor (Y / N)	5 / 25	2 / 8	3 / 17

Data are expressed in median (IQR) or categorical data

ACE = angiotensin converting enzyme. ASA = American Society of Anesthesiologists, BP = blood pressure, F = former HR = heart rate, MAP = mean arterial pressure, N = non-smoker, Y = yes.

**Table 2:** Intraoperative characteristics

	Total Group (n = 30)	Somatostatin	
		Yes (n = 10)	No (n = 20)
Crystalloids (ml)	3878 (1830)	3752 (1044)	3932 (1801)
Crystalloids (ml.kg <sup>-1</sup> .h <sup>-1</sup> )	6.6 (1.9)	6.2 (2.3)	6.8 (2.7)
Colloids (ml)	0 (400)	0 (200)	0 (400)
Estimated blood loss (ml)	350 (250)	325 (125)	375 (350)
Urinary Output (ml)	502 (310)	558 (294)	462 (296)
Urinary Output (ml kg <sup>-1</sup> h <sup>-1</sup> )	0.9 (0.4)	0.9 (0.4)	0.9 (0.4)
Ephedrine (mg)	6 (12)	3 (12)	6 (6)
Phenylephrine (mcg)	200 (375)	200 (300)	250 (325)
Propofol (mg kg <sup>-1</sup> h <sup>-1</sup> )	5.2 (1.1)	5.0 (0.2)	5.3 (1.2)
Remifentanyl (mcg kg <sup>-1</sup> min <sup>-1</sup> )	0.10 (0.02)	0.09 (0.02)	0.10 (0.02)
Duration of surgery (min)	543 (90)	530 (108)	556 (86)

Data are expressed in median (IQR).

**Table 3:** Haemodynamic measurements

Variable	Time-Point	Total group (n = 30)	Somatostatin	
			Yes (n = 10)	No (n = 20)
MAP (mmHg)	T1	75 (18)	76 (13)	72 (18)
	T2	77 (13)	82 (17)	74 (13)
	T3	73 (11) <sup>#</sup>	78 (14)	71 (9)
SBP (mmHg)	T1	109 (26)	116 (26)	104 (25)
	T2	122 (26) <sup>*</sup>	131 (24) <sup>*</sup>	121 (26) <sup>*</sup>
	T3	130 (16) <sup>* #</sup>	132 (20) <sup>*</sup>	130 (13) <sup>* #</sup>
DBP (mmHg)	T1	52 (13)	56 (14)	51 (13)
	T2	52 (10)	59 (10)	51 (8)
	T3	49 (7) <sup>* #</sup>	53 (7)	49 (6) <sup>* #</sup>
HR (bpm)	T1	77 (8)	76 (6)	77 (9)
	T2	89 (18) <sup>*</sup>	86 (15) <sup>*</sup>	89 (15) <sup>*</sup>
	T3	114 (28) <sup>* #</sup>	108 (29) <sup>* #</sup>	114 (21) <sup>* #</sup>
CVP (mmHg)	T1	9 (4)	10 (4)	8 (3)
	T2	9 (2)	9 (3)	9 (2)
	T3	8 (3)	8 (4)	8 (3)
CI (L.min <sup>-1</sup> m <sup>-2</sup> )	T1	3.1 (0.6)	3.1 (0.6)	2.9 (0.6)
	T2	3.3 (0.7) <sup>*</sup>	3.3 (0.9) <sup>*</sup>	3.3 (0.6) <sup>*</sup>
	T3	3.6 (0.7) <sup>* #</sup>	3.4 (0.8) <sup>*</sup>	3.6 (0.8) <sup>* #</sup>
dPmax (mmHg sec <sup>-1</sup> )	T1	1146 (216)	1304 (243)	1116 (220)
	T2	1572 (467) <sup>*</sup>	1572 (499) <sup>*</sup>	1612 (451) <sup>*</sup>
	T3	1932 (471) <sup>* #</sup>	1980 (338) <sup>* #</sup>	1911 (444) <sup>* #</sup>
SVI (ml m <sup>-2</sup> )	T1	40 (7)	40 (7)	40 (8)
	T2	39 (8) <sup>*</sup>	40 (5)	38 (11) <sup>*</sup>
	T3	31 (13) <sup>* #</sup>	32 (9) <sup>* #</sup>	31 (15) <sup>* #</sup>
Pms (mmHg)	T1	17 (5)	17 (5)	16 (5)
	T2	17 (3)	18 (3)	16 (3)
	T3	16 (5)	17 (3)	15 (5)
Eh	T1	0.54 (0.13)	0.50 (0.06)	0.56 (0.13)
	T2	0.58 (0.11)	0.54 (0.10)	0.58 (0.10)
	T3	0.61 (0.13) <sup>* #</sup>	0.57 (0.16)	0.62 (0.12) <sup>*</sup>
SVRI (Dyn sec cm <sup>-5</sup> m <sup>-2</sup> )	T1	1796 (469)	1891 (366)	1704 (515)
	T2	1651 (524)	1857 (476)	1614 (440)
	T3	1569 (496) <sup>* #</sup>	1718 (529)	1493 (343) <sup>* #</sup>
PPV	T1	9 (5)	8 (4)	10 (5)

(% )	T2	11 (5)	9 (2)	11 (4)
	T3	16 (10)* #	15 (9)* #	17 (14)* #
pH	T1	7.35 (0.04)	7.35 (0.06)	7.35 (0.05)
	T3	7.34 (0.04)	7.34 (0.04)	7.34 (0.04)
Lactate (mmol L <sup>-1</sup> )	T1	1.1 (0.7)	1.3 (0.5)	1.0 (0.6)
	T3	1.1 (0.5)	1.2 (0.6)	1.0 (0.6)

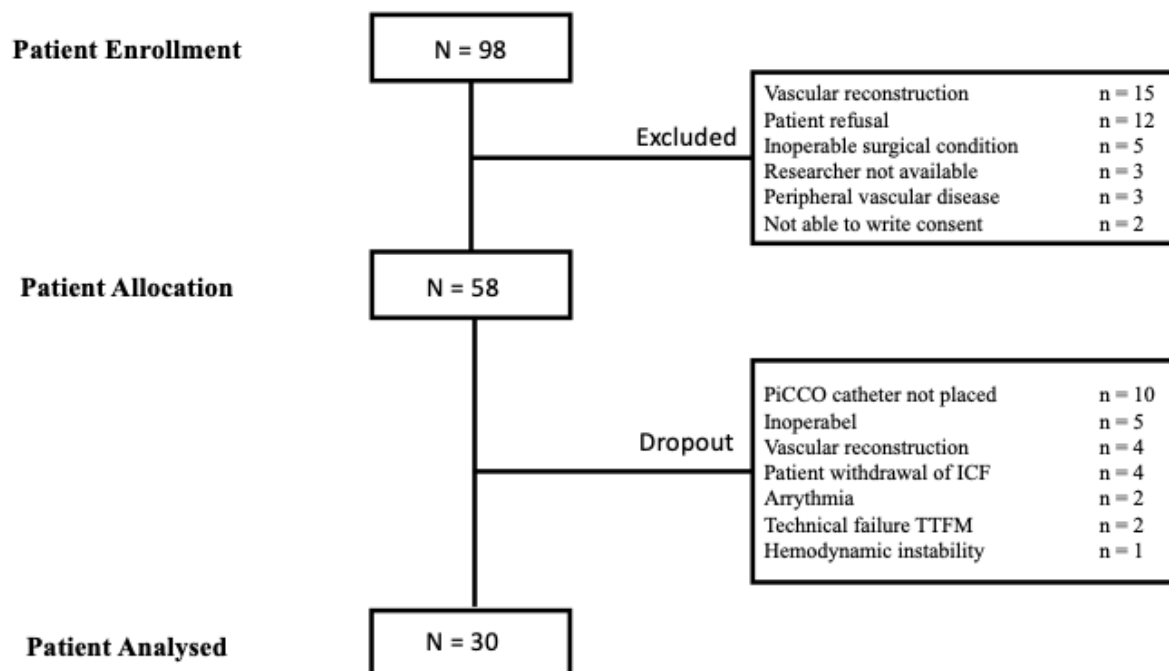
Data are expressed as median (IQR).

Significance is based on the linear mixed model analysis.

Significant differences are marked as \$ for significant between group difference and \* for significant within group difference, compared with T1 and # compared with T2.

*CI*: Cardiac index, *CVP*: Central venous pressure, *DBP*: diastolic blood pressure, *dPmax*: maximum pressure derivative, *Eh*: Heart performance, *HR*: Heart rate, *MAP*: Mean arterial pressure, *Pms*: Mean systemic filling pressure, *PPV*: Pulse pressure variation, *SBP*: Systolic blood pressure, *SVI*: Stroke volume indexed, *SVRI*: Systemic vascular resistance indexed.

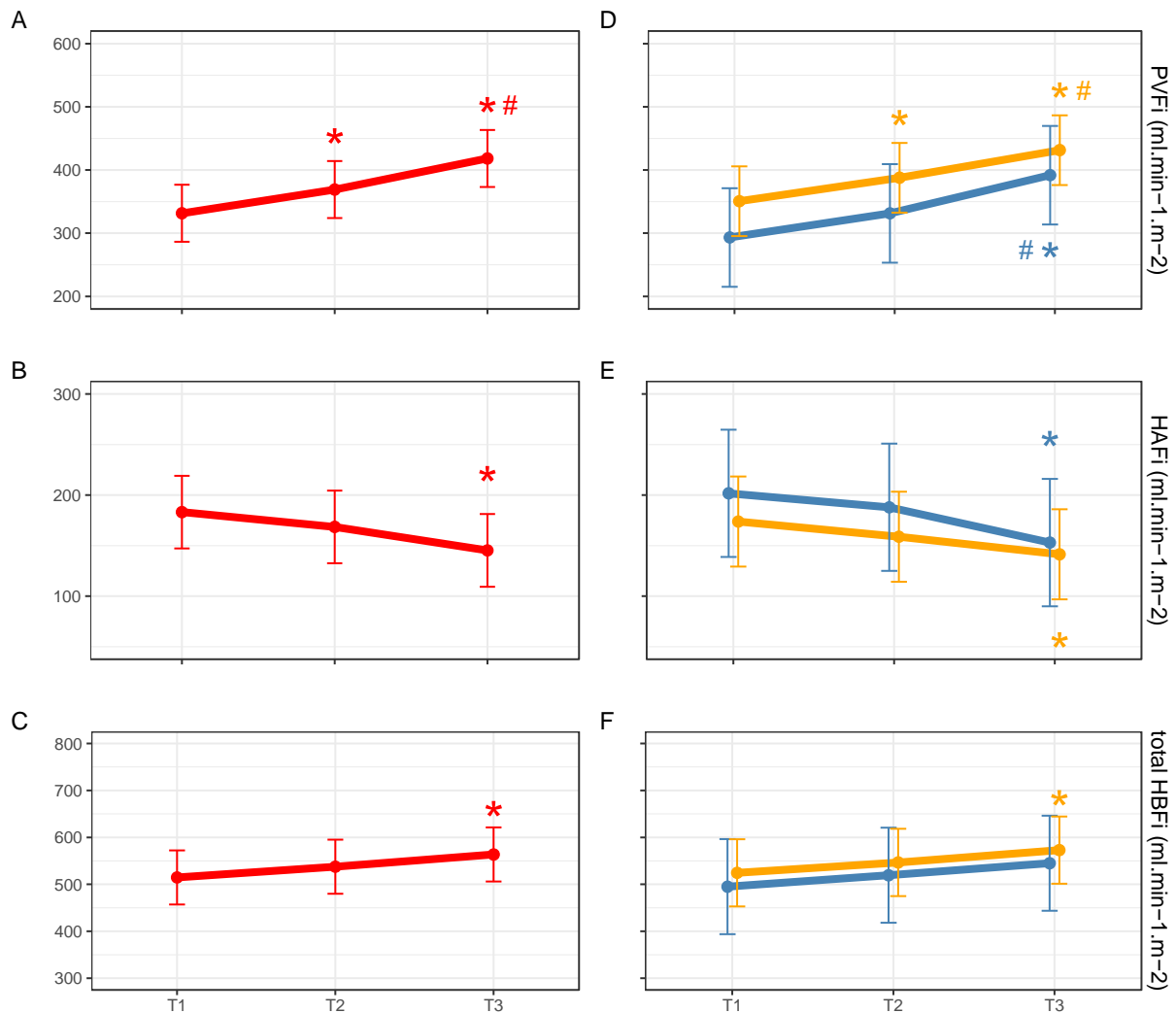
**Figure 1: Participant flow diagram**



Flow diagram according to STROBE.

ICF = informed consent form, TTFM = transit time flow measurement.

**Figure 2: Relationship between total HBFi, PVFi and HAFi.**



Significant differences are marked by \* for within-group difference, comparisons against T1 and # for comparisons against T2.

*HBFi*: indexed hepatic blood flow, *PVFi*: indexed portal vein flow, *HAFi*: indexed hepatic artery flow.

On the left, panels (A), (B) and (C) display PVFi, HAFi and total HBFi for the total group, respectively. On the right, panels (D), (E) and (F) show PVFi, HAFi and total HBFi, comparing SOMATO-treated patients (blue) with those not treated with SOMATO (yellow).