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**TITLE:** CHANGES IN IL-6 DURING ORTHOTOPIC HEPATIC TRANSPLANTATION  
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**INTRODUCTION:** Interleukin-6 (IL-6) induces production of hepatic acute-phase proteins in cultured liver cells.<sup>1</sup> An increased plasma concentration of IL-6 is believed to be an early nonspecific marker of the inflammatory response. Orthotopic hepatic transplantation (OHTX) may increase plasma IL-6. Such changes have not been studied previously, but they may help to explain the recipient response to OHTX. The purpose of this study was to determine if the plasma concentration of IL-6 changes during OHTX.

**METHODS:** After Institutional Review Board approval and informed consent, 15 patients undergoing OHTX were studied. Anesthesia was induced with thiopental and succinylcholine and maintained with sufentanil/isoflurane/pancuronium. Blood samples were drawn from an arterial catheter: 1 after induction of anesthesia (P1, Fig.1); 2 immediately before onset of Ax-Fem-Portal bypass (P2); 2 10 min after onset of Ax-Fem-Portal bypass (P3); 4 10 min prior to discontinuation of the portal limb (P4); 5 10 min post-reperfusion via the portal vein (P5); 6 90 min after P5 (P6). Samples were collected in chilled tubes containing EDTA-Na<sub>2</sub> and 100 µl of aprotinin. IL-6 was measured using ELISA techniques (R&D Systems, Inc.). Differences in IL-6 concentration were considered significant for p < .05 (Wilcoxon signed-ranks test).

**RESULTS:** There was a progressive and significant rise in the plasma concentration of IL-6 during OHTX except for the intervals P1-P2 and P4-P5. The greatest increase occurred during P5-P6.

**DISCUSSION:** The short t½ of IL-6 (3 min) and the sustained increase in IL-6 levels following reperfusion of the donor liver makes it unlikely that the increase represents a non-specific response to veno-venous bypass. More probable etiologies include an immunologic response to the newly implanted liver, or a non-specific response to major surgery.<sup>2</sup> The influence of immunosuppressive therapy on the increase in IL-6 will require further study. The large increase in IL-6 during OHTX may play a role in the physiologic changes seen with OHTX. Further studies to determine the time course of this large increase in IL-6 and to delineate the influence of immunosuppressive therapy on IL-6 levels are required.

**REFERENCES:** 1) Journal of Immunology 142:808-812, 1989.  
 2) Clinical Science 79:161-165.

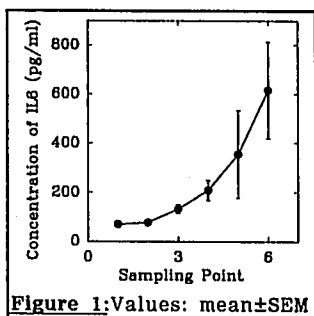


Figure 1: Values: mean ± SEM

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**Title:** VITAL ORGAN BLOOD FLOW DURING DELIBERATE HYPOTENSION  
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Deliberate hypotension (DH) is routinely employed in a variety of surgical procedures. However a technique which produces an increase in cerebral blood flow (CBF) may increase brain bulk and concomitantly impair operating conditions in neurosurgery. In this study we compared vital organ blood flow during DH by the use of increasing doses of Isoflurane (I) with a total intravenous technique (TIVA) using Propofol (P) and Alfentanil (A) in combination with the α-adrenoreceptor antagonist Urapidil (U) and low dose I.

12 mongrel dogs were randomly assigned to receive one of the following protocols:

	TIVA	ISO
<b>INDUCTION:</b>	P:10mg/kg A:0,1mg/kg	I (mask)
<b>MAINTENANCE</b>	P:15mg/kg/h A:1,5µg/kg/min U:2mg/kg→	I: 1MAC
<b>REDUCTION of MAP of 20% (2)</b>	0,5mg/kg/min	I: ↑
<b>REDUCTION of MAP to 50 mmHg (3)</b>	U:2mg/kg→ 0,5mg/kg/min+I	I: ↑↑

The dogs were intubated and normoventilated. Organ blood flows were determined by the microsphere technique 60 min after instrumentation (1), 25 min after stabilization of the desired blood pressures (2,3) and 90 min after the end of DH (4). Data are given as mean ± SEM; statistics: ANOVA; significance: p < 0,05. Hemodynamic data are shown in table 1, blood flows in table 2 (\*=p < 0,05 between groups, °=p < 0,05 within groups).

Less I was needed to reduce MAP to 50mmHg in the TIVA group (3,12±0,1 vs 0,9±0,19 vol% endtidal). A significant decrease in CO (thermodilution technique, measurements in triplicate) was observed in the ISO group, when MAP was decreased to 50 mmHg.

Table 1: Hemodynamic data

	ISO 1	TIVA 1	ISO 2	TIVA 2	ISO 3	TIVA 3	ISO 4	TIVA 4
MAP (mmHg)	93.4±4	104±6	70±2	88±2	54±2	54±1	98±5	76±3
CO (l/min)	4.2±0.3	3.9±0.6	3.2±0.2	4.7±0.5	2.3±0.3*	4.1±0.8	5.2±0.3	4.3±0.6

CBF was constantly significantly higher in the ISO group. CBF did not change during DH. At a MAP of 50mmHg a significant decrease in renal blood flow was observed in both groups. The decrease in liver blood flow was not significant and splanchnic blood flow remained stable.

Table 2: Blood flows (ml/100g/min)

	TIVA 1	TIVA 2	TIVA 3	TIVA 4
Brain (total)	32.8±4.2°	31.3±4.3°	32.5±4.8°	26.7±4.7°
Kidneys	326±41	338±28	215±43*	302±24
Liver	26.2±10.3	27.3±10.5	14.1±4.4	30.1±10.7
Small intestine	59.6±14.3	85.2±15.9	62.4±12.7	82.6±15.8
Large intestine	63.9±20.8	82.1±13.1	75.2±14.1	96.5±21.5

	ISO 1	ISO 2	ISO 3	ISO 4
Brain (total)	80.7±22.5°	94.3±16.5°	69.4±4.1°	54.2±9.8°
Kidneys	288.5±36	265.3±13.3	167.6±30*	223.7±16.2
Liver	34.8±12.7	26.8±4.2	15.2±4.4	12.2±6.4
Small intestine	42±7.4	49.5±13	44.3±7.7	41.6±4.4
Large intestine	47.6±5.8	39.8±4.7	51.1±5.6	49±8.3

In contrast to high I where DH resulted in cerebral hyperemia, the combination of TIVA, U and low dose I reduced CBF without reaching critical values and may thus be a preferable DH - technique for neurosurgery.