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LATE FUNCTION OF THE ORTHOTOPIC LIVER HOMOGRAFT

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THE CLINICAL and histologic features of the liver homografts of long term dog survivors following orthotopic hepatic homotransplantation have recently been described (1). The liver function of 9 of these animals was studied 98 to 442 days after operation. In each case immunosuppressive therapy was discontinued from 110 to 131 days after transplantation. In 1 (SS-4), subsequent deterioration of homograft function occurred necessitating resumption of azathioprine.

RESULTS

The results of standard liver function tests are shown in Table I. One animal (S^{35}-4) was completely normal; the other 8 showed varying degrees of hepatic dysfunction. A 5 hr. glucose tolerance test was normal in 5 of 6 dogs. Normal hyperglycemic response to 100 μg. of intravenous glucagon was present in 5 of 7 animals tested, while a minimal glycogenolytic response appeared in 2 (SS-4; Sch-9). In 5 dogs with good liver function, plasma cholesterol, phospholipids, and triglycerides were normal both on a regular kennel diet and a 117 gm. per day fat diet.

SUMMARY

In general the hepatic functional derangements paralleled the microscopic abnormalities previously described (1). The causes of the 4 deaths were liver failure (ICBM-13; SS-4), liver failure and a bleeding duodenal ulcer (I-10), and perforated duodenal ulcer (S^{35}-18). The clinical condition of the survivors corresponds to their liver function. This long term retention of life-sustaining liver function after hepatic homotransplantation is distinctly encouraging.

REFERENCE

1. STARZL, T. E., MARCHIORO, T. L., PORTER, K. A., TAYLOR, P. D., FARIS, T. D., HERRMANN, T. J., HLAD, C. J., and WADDELL, W. R. Factors determining short and long term survival after orthotopic liver homotransplantation in the dog. Surgery, July, 1965 (in press).

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Table 1—Liver Function Tests

		LAST DETERMINATION				LATE DETERMINATION**				
DOG	DAY	BILIRUBIN	SERUM GLUTAMIC OXALACETIC TRANSAMINASE	SERUM GLUTAMIC PYRUVIC TRANSAMINASE	ALKALINE PHOSPHATASE (BODANSKY)	BROMSULPHALEIN (25 MIN.)	PROTHROMBIN TIME (SEC.)	TOTAL PROTEIN	ALBUMIN	ALBUMIN/GLOBULIN RATIO
S35-4	436	0.1	24	34	2.1	8.0	7.3	6.74	2.64	0.64
•S35-18	332	0.1	28	280	33.6	16.0	6.5	7.12	1.67	0.31
IIIM-2	330	0.2	70	180	21	9.5	8.0	7.30	2.88	0.65
IIIM-12	322	0.0	33	180	7.3	11.5	7.6	6.96	3.10	0.80
•SS-4	237	4.0	755	380	114	10.1	7.0	5.18	2.32	0.81
S35-27	202	0.2	77	265	24	5.5	6.3	7.30	2.36	0.48
Sch-9	193	3.7	100	960	412	43.0	11.0	6.38	1.88	0.42
•I-10	163	4.7	62	110	166	49.5	7.9	4.83	0.57	0.13
•ICBM-13	153	4.8	280	64	485	65.0	13.7	6.03	2.98	0.98
Controls (12) Range		0.0–0.3	3–48	14–71	0.7–2.5	3.5–9.0	6.0–7.6	5.47–6.57	2.44–3.72	0.70–1.58
Average		0.1	18	28	1.5	6.6	6.6	5.93	3.05	1.09

• Dead

•• The late determinations were all done within 51 days of the last determinations except for SS-4. In this dog the BSP test was at 98 days, and the prothrombin time and proteins at 154 days.