

Bilirubin in Edema Fluids in Cardiac Decompensation.

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Meakins¹ stated that edema fluids in patients with cardiac decompensation contain no bilirubin and attempted to correlate this finding with the distribution of jaundice in patients with congestive failure. Andrews,² however, had previously reported the presence of appreciable amounts of bilirubin in the ascitic fluid of a patient with cardiac decompensation.

In the present studies edema fluids from various body spaces taken from 8 patients with cardiac edema were examined. Fluids and blood were withdrawn from the patient within a few minutes of each other. The method of Van den Bergh as modified by McNee and Keefer³ was used in estimating the serum and edema fluid bilirubin contents; the protein concentrations were measured by the macrokjeldahl method according to Dyer⁴ (non-protein nitrogen was subtracted from total nitrogen).

TABLE I.

Case	Type of Fluid	Protein gm. %		Bilirubin mg. %	
		Serum	Fluid	Serum	Fluid
F.	Chest	5.64	1.47	0.6	T*
K.	Ascites	7.36	4.92	0.7	0.5
H.	Chest	7.04	1.37	0.9	0.6
W.	"	6.77	1.69	1.0	0.7
R.	Ascites	7.97	2.60	1.4	0.7
B.	Chest	6.27	1.57	1.5	0.8
G.	"	7.52	2.49	1.5	0.9
Fo.	Ascites	7.55	4.73	1.9	1.3
R.	Subcutaneous Edema	6.98	0.12	2.8	0.3

*Unmeasurable trace.

The serum bilirubin concentration ranged from 0.6 mg. % to 2.8 mg. %; that of the edema fluids varied from a trace to 1.3 mg. %. Bilirubin was found in every specimen of edema fluid; the edema fluid bilirubin content was lower than that of the serum in each instance. The data suggest that there is a correlation between

¹ Meakins, J. C., *J. Clin. Invest.*, 1927, **4**, 135.

² Andrews, C. H., *Quart. J. Med.*, 1924, **18**, 19.

³ McNee, J. W., and Keefer, C. S., *Brit. Med. J.*, 1925, **2**, 52.

⁴ Dyer, B., *J. Chem. Soc.*, 1895, **47**, 811.

the bilirubin content of the edema fluid and of the serum, and also that for a given concentration of bilirubin in the serum, its concentration in the edema fluid is in general higher, the higher the protein content of the fluid.

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The Distribution of Material Inoculated into the Monkey Brain.*

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When conducting experiments with poliomyelitis virus, intracerebral inoculations are used extensively since monkeys are most consistently infected by this route. However, no data are available concerning the subsequent distribution of material inoculated in this manner. A large series of experiments was performed by us, in which the resultant neutralizing action of immune serum upon the virus was tested by direct inoculation of the mixtures into the brains of monkeys. During the course of this work numerous discrepancies in the results were observed. In an effort to account for the variations, among other factors, the influence of the method used to inoculate the serum-virus mixtures into the monkey brain and the eventual course of the material from the site of inoculation following its deposition were studied. The dispersion of the inoculum was followed by the addition of India ink to the mixtures.

Experiment I. 1.5 cc. of human serum was mixed with 1.5 cc. of a Berkefeld filtrate of a 5% virus suspension. This was the usual mixture which we had used in our neutralization test experiments. To this mixture 1 cc. of India ink was added. After thorough mixing, the material was injected into the right frontal lobes of 4 monkeys (*Macacus rhesus*), each receiving 0.25 cc., 0.5 cc., 1.0 cc., and 2.0 cc. respectively, with a tuberculin syringe carrying a $\frac{3}{4}$ -inch, 26-gauge needle which was inserted through a small trephined opening made on the frontal bone approximately 1 cm. to the lateral right of the mid-line and 1 cm. anterior to the coronal suture. At the end of 2 hours, the monkeys were chloroformed and their brains and spinal cords examined at autopsy. The results are summarized in Table I.

Experiment II. A second series of 4 monkeys was inoculated in a

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