

ciated, apparently, with a physical state common in all forms of protoplasm. Muscular contraction, on the other hand, is probably associated with a different physico-chemical system superimposed upon the other.

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Intramuscular Administration of Anti-Pneumococcal Serum in Infants and Children.

LAMBERT KRAHULIK, VICTOR RUDOMANSKI AND GEORGE CUNNINGHAM. (Introduced by Jean Oliver.)

From the Department of Pediatrics, Long Island College of Medicine, Long Island College Hospital, and the Long Island College Division, Kings County Hospital.

The intramuscular administration of a single dose of antipneumococcal serum in the treatment of pneumonia in childhood was attempted in an effort to obtain the advantages of serum-therapy without the dangers and technical difficulty inherent in intravenous administration. A very severe reaction with a marked chill and a rise in temperature to 108.6° followed the intravenous administration of serum to a child 7 years of age ill with Type I lobar pneumonia, and although she recovered we did not feel that in a disease which carried such a low mortality we were justified in jeopardizing the patient's chances of recovery. Nemir¹ reports 2 deaths which she believes were due to the intravenous administration of the serum. The above experiences with the intravenous route are not uncommon in institutions where a great deal of serum-therapy is used. Without serum-therapy the mortality varies from 4 to 7%. Trask² reported a mortality of 6% in type specific pneumococcal pneumonias studied at New Haven. Holt and McIntosh³ stated that of 1482 cases (over 3 years of age) taken from hospital practice the mortality was 4%. 497 cases (all ages) observed in our hospital from 1928 to 1936 showed a mortality of 7%.

Secretion for typing was obtained by means of a pharyngeal swab. In some of our cases, 24 to 48 hours elapsed before material containing pneumococci could be obtained for satisfactory typing.

¹ Nemir, R. L., *J. Pediatrics*, 1938, **13**, 219.

² Trask, James D., O'Donovan, Charles, Jr., Moore, Dorothea M., and Beebe, Agnes, *J. Clin. Invest.*, 1930, **8**, 623.

³ Lobar Pneumonia—Holt's Diseases of Infancy and Childhood, 10th Edition, p. 436.

TABLE I.

Infants—Age	Day of Disease	Lobe	Type	Serum	Amount	Result	C.
(4) 5 mo	2	R.U.	18	H	60,000	Crisis 24 hr	0
7 "	2	"	14	R	100,000	Lysis 36 "	0
(3) 12 "	1	"	14	R	100,000	Crisis 24 "	0
13 "	2	L.L.	14	R	100,000	" 24 "	0
(1) 14 "	4	L.U.	7	H	60,000	Lysis 36 "	0
18 "	7	R.U.	14	H	60,000	Crisis 18 "	0
18 "	2	"	14	R	60,000	" 18 "	0
20 "	6	"	14	R	100,000	" 24 "	0
(2) 21 "	4	"	14	H	60,000	" 18 "	0
23 "	3	"	14	R	60,000	Lysis 36 "	0
Children—Age							
2½ yr	3	R.L.	14	R	140,000	Crisis 24 hr	0
2½ "	6	"	14	R	80,000	" 18 "	0
2½ "	4	R.U.	14	R	80,000	Lysis 30 "	0
3 "	2	L.L.	4-8	R	120,000 each	Crisis 24 "	0
3½ "	8	"	11	R	100,000	Lysis 48 "	0
(20) 4 "	2	R.L.	5	R	120,000	Crisis 24 "	0
4½ "	3	"	1	R	120,000	" 12 "	0
5 "	3	L.L.	1	H	80,000	" 24 "	0
5 "	6	"	1	R	140,000	Lysis 48 "	0
(6) 5 "	5	R.L.	1	R	160,000	" 48 "	0
6 "	8	R.U.	1	H	100,000	Crisis 24 "	0
(7) 6 "	5	R.L.	7	H	80,000	" 18 "	0
7 "	4	L.U.	1	R	200,000	" 24 "	0
10 "	4	L.L.	1	R	100,000	" 24 "	0

Empyema

Later, a special laryngeal cannula with a syringe attached was devised by one of us (V.R.). This enabled us to get tracheal pneumococcus-containing sputum which in most instances was adequate for satisfactory typing at the first attempt.

Patients selected for treatment were those that appeared to be seriously ill; the milder cases were not treated. Half of the serum was administered into the muscle of each buttock. We used either rabbit or horse serum. If the child showed a positive ophthalmic or cutaneous reaction to horse serum, rabbit serum was used. However, not all the patients treated with rabbit serum were sensitive to horse serum.

Table I illustrates the cases treated and results obtained. It will be noted that in this series Type 14 predominates in the infants and Type I in the older children. The amount of serum used varied between 60,000 to 100,000 units for infants and 80,000 to 200,000 for the older children. The day of the disease when serum was administered varied from 1 to 8 days. The results of treatment were very encouraging. Seven of the infants had a critical drop in temperature and symptoms 12 to 24 hours after treatment and, in 3, the temperature subsided by lysis over a period of 24 to 48 hours. Ten of the older children had a critical drop in temperature and symptoms within 12 to 24 hours and 4 subsided by lysis in 24 to 48 hours. There were no deaths.

Figure 1 shows some of the temperature-curves typical of this series.

In Case 20 (a Type V pneumonia) the agglutinin-titer was determined before administration of serum and 4, 8, 12, and 48 hours

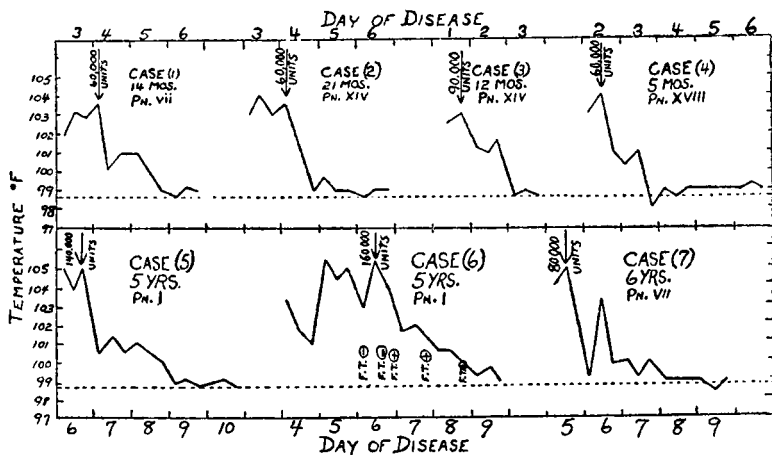


FIG. 1.

after administration of the serum. There was no agglutination present before administration of serum, but at the 4-hour period and the subsequent ones marked agglutination was demonstrable. In Case 6 (illustrated) reaction to the Francis test was negative 4 hours after administration of serum but 6 hours later it was strongly positive. These determinations would indicate that within a comparatively short time a sufficient amount of antipneumococcal antibody is absorbed from the muscle to account for the results obtained.

The Francis test or agglutinin-titration is now performed on all children who receive rabbit antipneumococcal serum and the agglutinin-titer is determined on all children who receive horse antipneumococcal serum.

We realize that this preliminary series is too small to draw final conclusions. However, the response to the intramuscular administration of antipneumococcal serum in 24 seriously ill children was decidedly favorable in all instances, resulting in a shorter course and in the recovery of all of them.

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Effect of Ether Peroxides in Wheat Germ Oil on Production of Tumors in Rats.

HARRY G. DAY, J. ERNESTINE BECKER AND E. V. MCCOLLUM.

From the Department of Biochemistry, School of Hygiene and Public Health, The Johns Hopkins University.

Rowntree and associates¹ have reported a high incidence of abdominal sarcoma in Wistar rats, as well as albino rats from the Buffalo and Yale strains, when fed crude wheat germ oil prepared by ether extraction. Great variability occurred in the rate of tumor production. In rats given 1 cc of oil daily tumors appeared in about 100 to 200 days; with 4 cc daily the average was about 54 days. The nature of the neoplastic agent has not been determined but since it appears to be absent from refined ether-extracted wheat germ oil, and wheat germ oils not obtained by means of ether, it is possible that the factor is produced by some action of ether on wheat germ. Owing to the tendency of unsaturated fatty compounds to undergo oxidation while in contact with ether containing

¹ Rowntree, L. G., Steinberg, A., Dorrance, G. M., and Ciccone, E. F., *Am. J. Cancer*, 1937, **31**, 359; Rowntree, L. G., Steinberg, A., and Brown, W. R., *Trans. Assn. Am. Physicians*, 1938, **53**, 199.