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Sulfanilamide Therapy of Friedländer-Bacillus Infections of Mice.

PAUL GROSS, FRANK B. COOPER AND MARION LEWIS.
From the Western Pennsylvania Hospital Institute of Pathology, Pittsburgh, Pa.

The efficacy of sulfonamide therapy against Friedländer bacillus infections in mice is still open to question. Levaditi and Vaisman[1] failed to demonstrate protection with Prontosil I* and Bürgers[2] was similarly unsuccessful with Prontosil II.† On the other hand, Buttle, *et al.*,[3] claimed "some degree of protection" for sulfanilamide therapy against multiple lethal doses as indicated by an increase in survival time, and several 12-day cures in mice infected with approximately 1 to 10 lethal doses.

The results obtained in a reinvestigation of this problem with 2 virulent strains of Friedländer bacillus are given in Table I. They indicate no significant therapeutic effect of sulfanilamide in mice infected with less than 10 M.L.D.

TABLE I.
Results of Sulfanilamide Therapy in Experimental Friedländer Bacillus Peritonitis of Mice.

Strain	Culture dilution	cc injected intra-abdominally*	No. of mice	Mg daily oral dose of sulfanilamide†	No. of survivors 1 2 3 4 5	6-14	(Over 14 days)
Tannehill M	10^{-3}	0.5	10	0	8 – – – –	–	2
"	10^{-3}	0.5	10	20	8 2 – – –	–	0
Tannehill M5	10^{-5}	0.5	10	0	2 3 2 2 –	–	1
"	10^{-5}	0.5	10	25	1 2 1 2 –	–	4
Williams M4	10^{-4}	0.5	10	0	1 4 2 – –	2	1
"	10^{-4}	0.5	10	20	0 3 2 1 1	3	0
"	10^{-5}	0.5	10	0	1 3 – 1 –	3	2
"	10^{-5}	0.5	10	20	– 2 – 1 –	3	4

* The amount injected corresponded to less than 10 M.L.D., determined by previous and simultaneous titrations.

† The first dose of sulfanilamide was given 3 hours after the inoculation and every day thereafter for 6 days.

1 Levaditi, C., and Vaisman, A., *Compt. rend. Soc. de biol.*, 1935, **119**, 946.

* 2,4-Diaminoazobenzene-4'-sulfonamide.

2 Bürgers, *Deutsche med. Wchnschr.*, 1937, **63**, 672.

† Disodium 4'-sulfonamidophenyl-2-azo-7-acetylamino-1-hydroxynaphthalene-3,6-disulfonate.

3 Buttle, G. A. H., Parish, H. J., McLeod, M., and Stephenson, D., *Lancet*, 1937, **1**, 681.

The action of sulfanilamide, 4,4'-di-(acetylamino)-diphenylsulfone, and 4,4'-diaminobenzenesulfonanilide on mice given single lethal doses of killed Friedländer bacilli was also investigated. The experimental set-up and results are given in Table II, in which the absence of any appreciable therapeutic effect of sulfanilamide is shown. The other 2 drugs were also inactive (Table II). These results are similar to those obtained in experiments with killed meningococci and streptococci, which are reported elsewhere.[4]

TABLE II.
Results of Chemotherapy in Mice Given Lethal Doses of Killed Friedländer Bacillus.

cc injected intraäbdominally*	No. of mice	Mg daily oral dose of drug†			No. of mice dead in days			No. of survivors (over 6 days)
		A	B	C	1	2	3	
.15	10	—	—	—	6	1	1	2
.15	10	15	—	—	1	6	2	1
.20	10	—	—	—	9	1	–	0
.20	10	25	—	—	3	2	2	3
.20	10	—	25	—	9	1	–	0
.20	10	—	—	25	7	2	–	1

* Heavy suspension of formalin-killed Friedländer bacilli (washed free of formalin and tested for sterility) adjusted so that 0.20 cc equals 1 M.L.D.

† The first dose of drug was given one hour prior to the injection of organisms.
A—sulfanilamide.
B—4,4'-di-(acetylamino)-diphenylsulfone.
C—4,4'-diaminobenzenesulfonanilide.

Conclusions. Sulfanilamide has no significant therapeutic activity in mice infected with less than 10 M.L.D. of 2 strains of Friedländer bacillus.

No therapeutic effect was observed with sulfanilamide, 4,4'-di-(acetylamino)-diphenylsulfone, or 4,4'-diaminobenzenesulfonanilide in mice injected with one M.L.D. of killed Friedländer bacilli.

[4] Gross, P., Cooper, F. B., and Lewis, M., *J. Inf. Dis.*, in press.