

tures of *E. typhosa* grown in a synthetic medium. Appropriate amounts kill mice and rabbits and smaller quantities induce a leucopenia and fever in rabbits.

The author wishes to acknowledge with gratitude the advice of Drs. J. F. Enders, J. H. Mueller, Y. Subbarow and M. A. Logan of the Harvard University Medical School.

11253

Skin Sensitivity of Man to Bovine Plasma and Its Albumin and Globulin Fractions.

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The injection of whole bovine plasma in man was found to be associated with a considerable number of untoward reactions.¹ In an effort to determine the source of these reactions the whole plasma was fractionated into albumin and globulin portions. A study of skin sensitivity of man to these materials forms the basis of this paper.

Method From sterile bovine plasma, prepared as described elsewhere,¹ albumin and globulin fractions were separated by ammonium sulfate precipitation. The details of this procedure will appear in a subsequent publication.

One hundred and forty-six patients selected at random* were tested for skin sensitivity to bovine albumin solution, bovine globulin solution, and whole bovine plasma. Normal NaCl solution was used as a control. Five-hundredths cc of each of the above was injected intradermally and readings were taken after 20 to 30 minutes. No change or disappearance of the original wheal was considered negative, slight enlargement of the wheal with a small area of erythema 1+, a marked halo of erythema without pseudopodia 2+, pseudopodia and enlargement of the original wheal to twice original size

¹ Wangensteen, O. H., Hall, Harry, Kremen, A. J., and Stevens, B., in press.

* Acknowledgment is made to Dr. Maenider Wetherby, Head of the Outpatient Department of the University of Minnesota Hospitals, for his cooperation in this study.

TABLE I.
Results of Skin Tests.

Solution used	Reactions									
	0		1+		2+		3+		4+	
	No.	%	No.	%	No.	%	No.	%	No.	%
Saline solution	136	93	7	5	3	2				
Bovine albumin solution	99	68	39	27	8	5				
" globulin "	56	38	50	35	36	25	3	2	1	0.7
Whole bovine plasma	25	17	43	30	53	36	23	15.5	2	1.5

TABLE II.
Relationship of Type of Reaction with Albumin and Globulin Fractions to Type of Reaction with Whole Plasma.

Plasma Reaction	Type of albumin reaction Figures expressed in %			Type of globulin reaction Figures expressed in %			
	0	1+	2+	0	1+	2+	4+
0	100			100			
1+	100			63	37		
2+	42	49	9	35	50	15	
3+	35	50	15	20	75	5	
4+		50	50		50		50

3+, and marked edema, induration, pseudopodia and erythema 4+.

Results. The results of skin tests on 146 patients are tabulated in Table I. It is noted that a wide difference of skin sensitivity appears between the albumin, globulin and whole plasma. There were 7% positive reactions (1+ to 2+) with the control saline solution. The albumin caused the least number of positive reactions, the globulin was intermediate, and the whole plasma caused the largest number of positive reactions as well as those of greatest magnitude.

Table II shows the relationship of the reactions of the albumin and globulin fractions to those of whole plasma. The results are tabulated as the percentage of the type of reaction of the plasma fractions that occurred with the different types of reaction to whole plasma. In no instance did the type of reaction of the albumin or globulin fraction exceed that of the whole plasma in intensity. In only 4 cases (2.7%) was the reaction of the albumin equal to that of the plasma and in 34 cases (23.3%) was the reaction of the globulin fraction equal to that of the whole plasma.

Summary and Conclusions. 1. The skin sensitivity of man to bovine plasma and to its albumin and globulin fractions has been investigated. 2. The skin sensitivity of man to the three preparations tested is least marked with the albumin fraction of bovine plasma.