ABSTRACTS OF COMMUNICATIONS

Thirty-seventh meeting.

California Branch, Berkeley, California, April 24, 1923.

243 (2203)

The mechanism of edema production by paraphenylenediamin.

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The subcutaneous injection of paraphenylenediamin hydrochlorid in the dosage of 0.19 gm. per kilo in rabbits, produces a peculiar, specific edema of the head and neck in from one to three (median, one and one-half) hours after the administration. At the same time there is a relative increase in hemoglobin and total solids of the blood due to escape of fluid from the circulation, indicating that increase in vascular permeability may be a factor in the production of the edema. With this dosage, and providing the freshly dissolved drug is injected, edema is produced almost invariably. Old and standing solutions (even for 24 hours) are uncertain and ineffective, and this, in part at least, explains the variabilities previously encountered. The following is a summary of results on 96 animals which have been used for the study, in various ways, to date.

Meissner claimed that large doses of atropin and calcium prevented the edema. We have not been able to confirm this. Maximal doses of the following agents injected in various ways did not influence the development and the course of the edema nor the blood concentration; calcium, atropin, morphin, chloral hydrate, urethan, ether, sodium bromide, cocain, ergotoxin, antipyrin, neocinchophen, sodium salicylate, quinin and cinchophen (in some rabbits). In about half of the rabbits receiving cinchophen, the production of pleural and peritoneal exudates was favored and the mortality increased. Our results with atropin and calcium agree with negative results of Gibbs who used cats instead of rabbits for studying the edema of paraphenylenediamin. The only agent which has prevented the edema thus far is nicotin in large doses hypodermically. Section and

degeneration of the cervical sympathetic nerves did not prevent the edema.

Localization of the edema in the head and neck is not connected with an increased concentration of paraphenylenediamin in these regions, since quantitative estimations of the paraphenylenediamin in the saliva and edematous fluid showed the concentration to be less or no greater than that in the blood plasma.

The results with various concentrations of paraphenylenediamin (base and acid salt) on swelling of gelatin in aqueous solutions and of muscle in serum *in vitro* were negative indicating that the edema is not the result of change in the physical state of the tissue colloids by the paraphenylenediamin directly.

The edematous fluids in two rabbits gave P_H values of 6.86 and 6.95, while those of the blood were 7.1 and 7.2 respectively. In another animal, which received nicotin, the P_H of the edematous fluid was the same as that of the blood (*i. e.,* 7.3).

Paraphenylenediamin hydrochlorid oxidized by lead peroxide failed to produce edema. Hence, it appears that the oxidation products (quinondiimin, etc.) are not concerned in the edema.

The study is being continued.

244 (2204)

Increased number and clumping of thrombocytes (platelets) in pigeons produced by agents causing anaphylactoid reactions.

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A variety of agents, previously reported by Hanzlik and Karsner cause anaphylactoid reactions when injected intravenously. With many of these emboli and thrombi composed of red blood corpuscles, fibrin and platelets are demonstrable in the lungs, and hemagglutination occurs *in vitro.* These changes together with the alterations in chemical composition of the blood recently demonstrated in this laboratory, are regarded as objective evidences of disturbances in important physical and chemical equilibria in the fluids and tissues of the organism, and as being of fundamental importance in the explanation of reactions from a variety of agents. The present report is a sum-