Serological Observations on Patients with Chromium-Eczema and Chromium-Sensibilized Guinea-Pigs

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An attempt was made to detect circulating antibodies in the blood of patients, suffering from sensitization to chromium and of Cr-sensibilized guinea-pigs. The following methods were applied:

1. The passive haemagglutination-test according to Boyden [1].
2. The micro-immuno-electrophoresis method according to Scheidegger [3].
3. The contra-diffusion method according to Ouchterlony [2].

According to Boyden O-erythrocytes were defibrinated, rinsed in a physiological salt solution and suspended in physiological solutions of 1 % Cr(III)-chloride in order to bind the Cr(III) to the surface of the erythrocyte. Hexavalent Cr(VI)-solutions cannot be used, as the Cr(VI) penetrates through the cell membrane. The erythrocytes were mixed with inactivated antiserum at a temperature of 25 °C in order to demonstrate the presence of circulating antibodies by agglutination of the erythrocytes after 2 to 24 h. From 2 to 12 weeks after sensitization no circulating antibodies were found.

Proteins of the antiserum were separated electrophoretically, by applying a 1 % agar solution. Next the antigen and the antibody were allowed to move towards each other by diffusion at 37°C for 48 h. The encounter is shown by the white line of their precipitate.

Applying the Ouchterlony technique without preceding electro-phoresis the proteins of the antiserum were allowed to diffuse towards the antigen. The following possible antigens were investigated:

1. Potassium-bichromate 1 %.
2. The serum of a non-sensitized guinea-pig, diluted with 1, 2, 4 or 8 volumes of potassium-bichromate 1 %.
3. The homogenates of skin, lymphnodes or spleen and their sediments and supernatant fluids separately. The antibodies were the antiserum or a dialyzed extract of the skin.

References