

Résumé

EFFECT OF HYDRONSAN TO THE APPEARANCE OF STREPTOMYCIN, ISONIAZID, AND SODIUM-PARAAMINOSALICYLATE RESISTANCE

KOJI MIURA, MITSUO HAYASHI & TAKASHI ABO
The Obuso National Sanatorium
(Director: Dr. ROKURO KATSUNUMA)

The strain used was *Mycobacterium tuberculosis* var. *hominis*, strain Aoyama B, and the medium used 1% OGAWA's egg medium (composition: $\text{NH}_4\text{PO}_4 \cdot 7\text{H}_2\text{O}$ 1.0 g, sodium glutamate 1.0 g, distilled water 100 ml, eggs 200 ml, glycerine 6.0 ml, 2% malachite green 6.0 ml). Ten ml of the medium was poured into each tube, and the tubes were heated at 85°C for 1 hour.

Sodium para-aminosalicylate "Tanabe", isoniazid "Daiichi", dihydrostreptomycin "Kyowa", and Hydronsan "Chugai" were used. The drugs were added to the medium before sterilization.

1) The growth inhibition of Hydronsan to the strain was respectable to the quantity of isoniazid.

2) The combined use of sodium para-aminosalicylate and Hydronsan was additive as in the case of sodium para-aminosalicylate and isoniazid.

3) The appearance rate of resistance to 1 mcg per ml of Hydronsan was equal to that to 1 mcg per ml of isoniazid. But that to 20 mcg per ml of streptomycin from the strain resistance to 1 mcg per ml of Hydronsan was slightly lower than that to 20 mcg per ml of streptomycin from the strain resistant to 1 mcg per ml of isoniazid.

4) The growth of organisms was slightly inhibited by the addition of Glucuronsan. And the appearance rate of resistance to 1 mcg per ml of isoniazid from the strain grown on the medium containing 1.5 mcg per ml of Glucuronsan, was slightly lower than that from the original strain grown on the medium without drug.

STUDIES ON CHEMOTHERAPY FOR PULMONARY GANGRENE WITH SPECIAL REFERENCE TO SENSIBILITY AND RESISTANCE TO VARIOUS ANTIBIOTICS FOR MAIN PATHOGENIC MICROORGANISMS

SANKAI SHI

Department of Surgery, Tokyo Medical College

The effect of chemotherapy for pulmonary gangrene has so reduced that there is no other sure way than the combined use of 2 or 3 drugs. This tendency is considered to be due to the pathogenic microorganism's acquisition of the resistance to antibiotics. The author has undertaken the study in order to clarify the obscure points involved.

The sensibility and resistance for antibiotics have been made on the strain isolated from the sputum or pus obtained from 37 cases in which main pathogenic microorganisms were limited to *Spirochaeta dentium*, *Fusobacterium*, *Bacillus*, *Micrococcus*, *Coccobacillus*, *B. ramosus*, *Staphylococcus* and *Streptococcus*. The sensibilities of causative microorganisms were classified into the following 3 groups:

- 1) Sensible group: *Spirochaeta dentium*, *Fusobacterium*, *B. ramosus*, *Streptococcus*.
- 2) Relatively sensible group: *Micrococcus*, *Coccobacillus*, *Staphylococcus*.
- 3) Non-sensible group: *Bacillus*.

The degree of sensibility of the antibiotics was found to be in the following descending order: chloramphenicol, oxytetracycline, chlortetracycline and penicillin. It is therefore most effective to treat pulmonary gangrene with chloramphenicol as principal agent. As the examinations of sensibility to select the effective drug out of various antibiotics are very complicated, the author devised the method to measure sensibility simultaneously with direct culture of sputum or pus.

It was found that the effective drug was simply and rapidly selected out of various antibiotics with error of about 10% as compared with the results of sensibility in respective bacteria isolated from it.

A CASE OF DYSENTERY INDUCED BY *PROTEUS MORGANII* DURING ADMINISTRATION OF ANTIBIOTICS AFTER SURGICAL OPERATION OF ABDOMEN

YOSHINORI NARITA

2nd Department of Surgery, Nagoya University School of Medicine

NOBUO KATO

Department of Bacteriology, Nagoya University School of Medicine

A patient who had been administered with

tetracycline (achromycin) and penicillin for seven days after the operation of the intestine showed severe dysentery-like symptoms. From the patient *proteus* was isolated in almost a pure culture. The organism was resistant to all antibiotics tested except to chloramphenicol, which had marked therapeutic effect. Oral administration of 1 g of the drug daily for 3 days recovered the feces to the normal state almost completely.

The patient was 30 years old man. In his familial and early history any noticeable illness was not found. Since a few years before the admission he had complained of dull pain at the right lower abdomen. Under the diagnosis of cecum mobile, operation was carried out. Ileumend, cecum and ascending colon were resected and ileocolostomy was set up. Since the abdominal distension continued after the operation, food and water were not given orally, and blood transfusion, injection of Ringer solution and vitamin were done every day for a week. As remittent fever continued achromycin was injected intravenously 500 mg daily with 500 ml of 5% glucose solution and penicillin intramuscularly 300,000 units daily. The antibiotic treatment was continued until the development of dysentery-like symptoms on the 7th day after the operation.

The isolated organism was identified as *Proteus morganii* biologically and serologically. *Proteus morganii* seems to be mainly parasitic and potentially pathogenic. It has been cultured from the feces of sporadic dysentery, enteritis and diarrhea, but its pathogenicity seems to be doubtful. Under suitable conditions it seems capable to multiply in the intestine, but it can hardly be ranked along with the organisms of the *shigella* group.

The occurrence of the dysentery-like symptoms in this case might depend on the active growth of *Proteus morganii* in the intestine which resulted from the disturbance of the equilibrium in the intestinal flora induced by the administration of the antibiotics, but the nutritional deficiency of the patient which resulted from the starvation after the operation of the intestine might be the other important condition to consider the mechanism of the pathogenesis of this case.

STUDIES ON THE EFFECT OF COMBINATIONS OF PENICILLIN AND CHLORTETRACYCLINE ON *PNEUMOCOCCI*

MIKIO KIMURA

Department of Pediatrics, School of
Medicine, Keio University

Experiments, *in vitro* and *in vivo*, upon the combined effect of penicillin and chlortetracycline on *Pneumococci* are surveyed, and the followings are resulted.

Effects *in vitro*.

1) Antagosis is observed in many cases in regard to bactericidal effect, even in the cases in which antagonisms are not seen from the point of bacteriostatic effect.

2) When the concentration of penicillin is above effective level, the bactericidal effects are interfered with chlortetracycline, and the degree of interference are increased with the increase of chlortetracycline concentration. The combination of penicillin with minimum effective concentration and chlortetracycline under valid concentration, revealed sometimes interference of penicillin bactericidal effect. Though the antagonisms are resulted in the above combinations, the additive effects are observed occasionally in narrow range when penicillin and chlortetracycline are combined with each minimum effective concentration.

3) The relationships mentioned above are sometimes obscure by the conditions of the amount of inoculum and the types of strains and others.

Effects *in vivo*.

1) The survival effect of penicillin against the mice infected with *pneumococci*, are interfered in a certain range, by the addition of under effective dose of chlortetracycline.

2) The antagonism is observed both in single and multiple (divided in three) dosage.

3) The antagonism is not increased in the mice in which the natural defense mechanisms are lowered by the systemic irradiation of isotope Co⁶⁰.

4) The antagonism is observed to be almost completely eliminated by the injection of certain amounts of rabbit immune serum of *pneumococci*. The elimination is also observed in the mice irradiated with isotope Co⁶⁰.