Résumé

EFFECTS OF PREDNISOLONE ON EXPERIMENTAL CRYPTOCOCCOSIS IN MICE ESPECIALLY ITS INFLUENCE ON NUMBERS OF VIAL FUNGI IN ORGANS

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Effects of prednisolone on experimental cryptococcosis in mice and on experimental treatment for cryptococcosis with amphotericin B were studied.

The methods were to observe the survival rate of inoculated mice and to calculate the numbers of survival organisms by culture in brains, lungs, livers, kidneys and spleens.

Subcutaneous administration of prednisolone (0.5 mg~2 mg) decreased remarkably the survival rate of mice in experimental cryptococcosis.

This is due to the fact that the hormon accelerated the spreading of *Cryptococcous neoformans* all over the body.

Amphotericin B, an antibiotic, had a strong antifungous activity *in vitro*, and was also effective on experimental cryptococcosis in mice. It suppressed the increase of *Cryptococcus neoformans* in infected mice. But it could not completely recover mice from cryptococcosis, for vial organisms were demonstrated still positively after the completion of treatment.

The antifungous effects of the drugs were not interfered by concomitant administration of prednisolone. Therefore, the use of amphotericin B with prednisolone in cryptococcosis is expected to have more effective cure, owing to the anti-inflamatory effects of the latter added to the antifungous activity of the former.

INFLUENCES OF ANTI-CANCER DRUGS ON ERYTHROCYTES

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We have had clinical studies and animal experiments upon the newly synthesized anti-cancer drug, *o,o'-p*-phenylene NN'N''N'''-tetraethylene-tetramidodiphosphate (RC-4 Sankyo), since then pretty much acquaintance of its effects and side-effects has been made. In this paper we report the results using this compound on erythrocytes, especially on hemolytic action. For control the other anti-cancer drugs, nitromin-Takeda, carzinophilin-Kyowa and tespamin-Sumitomo were used.

In comparison with hemolytic action of each compounds in diluted solution of 1/25 concentration in general use, nitromin causes immediate hemolysis, but RC-4 needs 6 days to have complete hemolysis, 7 days for carzinophilin and 12 days for tespamin. Furthermore the osmotic pressures of normal saline solutions of each compounds appear to be isotonic regardless of their concentrations, however pH shows strong acid in nitromin, weak alkaline in carzinophilin, and almost neutral in tespamin and RC-4.

SYNERGISTIC EFFECT OF HUMAN GAMMA GLOBULIN AND CHEMOTHERAPEUTIC AGENTS. I. EFFECT OF COMBINED ADMINISTRATION WITH HUMAN GAMMA GLOBULIN AND SULFADIAZINE UPON THE PNEUMOCOCCAL INFECTION OF MICE

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White mice were infected with pneumococci of either type I or type III by an intraperitoneal inoculation. Viable units of the inoculums were determined by counting colonies grown on sheep blood agar plates. Within one hour after the inoculation, commercial human globulin was injected into the mice intramuscularly, or sulfadiazine was given by mouth.

Although a single administration of either the gamma globulin or the sulfa drug prevented the death of some of the infected animals, combined administration of both agents brought about a more marked therapeutic activity which proved synergistic

rather than additive. Bacteriological aspects relating to the results obtained are discussed.

THE EFFECTS OF BENZOTHIAZOL DERIVATIVES AND SOME OTHERS UPON *CANDIDA IN VITRO*

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The activities of 15 benzothiazole derivatives and 5 other compounds upon *Candida albicans*, *C. krusei*, *C. guilliermondi* and several bacterial strains were examined *in vitro*. All of benzothiazole derivatives were not so effective, but 2, 5-dichloro-4-thiocyanoaniline had a high growth-inhibiting power against not only *Candida* but also general bacteria. The latter had a high bacteriostatic power against *Myc. tbc.* including SM or INAH resistant strains, too. The acute toxicity against mice was much lower than INAH.

THE ANTITUBERCULOUS ACTIONS OF THE FATTY ACID DERIVATIVES COMBINED WITH THE CYCLIC COMPOUNDS AT THE POSITION

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The antibacterial activities of 27 fatty acid derivatives were tested *in vitro*. The strains used were *St. aureus*-209 P, *E. coli*-OGAWA and *Myc. tbc.* H_{37}-Rv. All of the compounds were not effective against *St. aureus* and *E. coli*, but were effective against *Myc. tbc.* In the compounds, the fatty acids combined with PAS or INAH showed the high antituberculous activities *in vitro*, especially 4-ethyl sebacato amino salicylic acid and N-isonicotinoyl ethyl sebatic acid hydrazide were the most effective. The authors discussed the antituberculous activities between the relationship between the antituberculous activities and the chemical structures of the compounds.

Furthermore the toxicities and the antituberculous actions *in vivo* of -phenyl amino undecanoic acid and 4-ethyl sebacato amino salicylic acid were examined in mice. The toxicities of these compounds were weaker than that of INAH, but not so effective against mice tuberculosis.

STUDIES ON SIMULTANEOUS USE OF STEROIDS UPON PENICILLIN TREATMENT OF EXPERIMENTAL INFECTION

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The author investigated the effects of simultaneous administration of cortisone upon penicillin treatment of mice experimentally infected with *pneumococci*, and obtained the following results :

1) When relatively sufficient amount of penicillin was used for treatment, the administration of 2.5 mg/kg/day of cortisone will exhibit the effect of simultaneous administration, if penicillin was used for one day longer than cortisone.

Although, the larger doses of 25～250 mg/kg/day of cortisone were used without harmful effects, scarcely any advantageous effect of the simultaneous administration was observed.

2) Even when relatively sufficient amount of penicillin was used for treatment, if cortisone was given one day longer than penicillin, the administration of cortisone with the dose of less than 2.5 mg/kg/day will not show the effects of simultaneous administration. Simultaneous administration of a large dose of 250 mg/kg/day of cortisone exerted a harmful effect and increased the death rate significantly.

3) No advantageous effects were observed by the simultaneous administration of cortisone, when insufficient amount of penicillin was used for treatment.

4) There were no appreciable influences by the administration of cortisone prior to the onset of infection, regardless of the treatment either by sufficient or insufficient amount of penicillin.