the difficult procedure of bronchoscopy—chloramphenicol is a useful agent.

Positive statement of the limited indications for use of chloramphenicol would be far preferable.

Senator NELSON. Are there certain bronchial conditions in which chloramphenicol is indicated?

Dr. HOEPRICH. One can conceive that there might be. For example, infections caused by the gram negative bacilli such as the Salmonellae sometimes involve the tracheobronchial tract and, indeed, I have seen what one would have to call pneumonia caused by Salmonella typhi murium, one of this kind of micro-organisms; this was an indication for use of chloramphenicol. The circumstances that I referred to, Q fever, occurring in a patient who had a severe, life-threatening hypersensitivity reaction to tetracycline, this would be another instance; Q fever is present as a pneumonia when it occurs in humans. So these situations can occur. I do not think they are utterly impossible, but they are uncommon, I am sure.

OTHER ASPECTS

Chloramphenicol is a remarkably effective antimicrobial agent. Indeed, chloramphenicol would be a nearly ideal antimicrobic were it not for the adverse reaction of bone marrow aplasia. Although quite infrequently in occurrence, fully developed aplasia is usually lethal. Because, at present, there is no way to predict who will have this kind of adverse reaction, and because there are now available many alternative antimicrobics, the use of chloramphenicol should be severely restricted to the few indications previously described.

In those few situations when chloramphenical must be used, its use must be circumscribed in these ways:

1. The blood must be monitored every 48 hours by measurement of the volume of packed red cells, number of white blood cells, along with differentiation of the kinds of white blood cells and examination for adequacy in numbers of blood platelets. I might add, here, that it is not generally available, but some would regard measurement of the iron concentration in the blood serum as a much superior monitoring device to any of the ones I have indicated. This is technically a difficult procedure and is certainly not generally available.

Treatment must be stopped when any of these measurements falls below the accepted, minimal values.

Senator NELSON. Do you consider when chloramphenicol is administered to any patient that blood studies must always be made or sometimes be made?

Dr. HOEPRICH. I think they must always be made.

2. Dosage with chloramphenicol must—

   (*a*) Never be excessive, that is, 15 to 80 milligrams per kilogram body weight per day in the adult; no more than 25 milligrams per kilogram body weight per day by injection in the premature or newborn infant; no more than 50 milligrams per kilogram body weight per day by injection in infants over 1 month in age.

   (*b*) Never be unduly prolonged.

3. Repeated use in the same person must be avoided.