constituent of foetal serum, but it virtually disappears from the circulation very soon after birth and is not detectable in normal adults. The only conditions where α_1FP has been found in the sera of adult humans in significant quantities are primary hepatocellular cancer of the liver and teratocarcinomas. It has been shown that the demonstration of α_1FP in the serum of adult patients can be regarded as a reliable indicator of the presence of primary carcinoma of the liver. Synthesis of α_1FP by liver cancer cells is believed to result from derepression of genes which had been, in turn, activated and then repressed during ontogenesis. Techniques most commonly used for the detection of α_1FP are bidimensional immunodiffusion (Ouchterlony), counter-current electrophoresis, followed by complement-fixation tests, haemagglutinin inhibition and more recently radioimmunoassay and latex agglutination. The relative merits of these techniques, as well as the problems of quantitation, standards, and availability of suitable antisera, will be discussed. The importance of good quality specific high titre antisera is emphasized. The interpretation of results and main sources of error will be considered, including the occurrence of α_1FP in conditions other than hepatoma. Statistical and epidemiological data available to date regarding results obtained in various centres will be presented, as well as our own findings.

Antibody Protein Levels in Maternal Sera in Rh Haemolytic Disease

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An automated haemagglutination technique was used to estimate antibody protein levels, in the maternal sera, in 600 pregnancies complicated by Rh incompatibility. Good correlation was found between the maternal antibody protein level and the subsequent severity of haemolytic disease in the baby. The method was found to be very reliable for selecting cases for amniocentesis. In 325 pregnancies (group I) where the mother developed Rh antibodies for the first time, amniocentesis was indicated if the antibody protein value reached or exceeded 1·5 μg/ml before the end of 34 weeks' gestation. In 275 pregnancies (group II) where the mother had had a previously affected baby, amniocentesis was indicated if the antibody protein level reached 1·0 μg/ml or more before the end of 34 weeks' gestation. If the automated technique was employed instead of manual antibody titrations, the proportions of mothers requiring amniocentesis in group I fell from 45% to 35% and the proportion in group II fell from 56% to 50%.

The maternal serum of two of the 600 mothers contained a bromelin inhibitor; pre enzyme treatment of the test cells in the automated procedure overcame this problem.

A Mortality Study of Sickle Cell Anaemia in Central Africa 1968-1971

G. P. T. BARCLAY (*Kitwe, Zambia*)

In our community of Zambian mine workers and their families, the total population of some 60,000 has a sickle cell carrier rate of 18%. In three years, 246 cases of sickle cell anaemia have been found and a closely supervised screening programme has revealed 49 of them to have died in childhood. In only seven of these cases was the diagnosis of sickle cell anaemia offered clinically. Most were discovered by typing everyone born in and admitted to the community hospital, some direct to the necropsy room.

The age range of these fatalities is of particular relevance clinically and offers a clue to the reason for the paucity of adult homozygote sicklers in this country.

The now traditional classification of crises into occlusive, haemolytic, and aplastic is meaningless in the form of the illness seen in Zambia. The clinical course of many of these fatal cases of sickle cell anaemia has been dramatic. Death occurred most commonly after a relatively short period of oligaemic shock and central cardiac failure following a rapid worsening of the anaemia, the result of acute hepatosplenic sequestration, in turn, associated with the metabolic acidosis of an infection. The key to the successful management of sickle cell anaemia is the prevention of infection.

Necropsies were performed on 21 of this series. The results further elucidate the nature of the sequestration syndrome and indicate the urgent necessity for a rational treatment regime which is simple and is proving increasingly successful.

The Spread of Cholera to and within Nigeria 1970-71

A. M. M. WILSON (*University of Edinburgh*)

The seventh pandemic of cholera started from an endemic focus in the East Indies in 1961. Its westward spread came to a halt in the Middle East in 1966. In August, 1970, the disease was reported from south Russia, previously uninfected parts of the Middle East, Libya, and Guinea. From Guinea it spread east along the coast to Nigeria in December and Cameroun in February and inland more slowly to reach Mali in November and Chad in May. No northward spread occurred along the coast but eventually inland spread from Mali to Mauritania was reported in June, and subsequently to Morocco, Spain, Senegal and Algeria.

Within Nigeria the spread was general, all but one of the 12 states reported the disease within three months. Explosive outbreaks were few and small, except for that in Ibadan at the end of Ramadan.

Total figures are unknown. Most cases were in adults. The case mortality in Lagos fell from over 50% in the first week to under 5% two and a half months later.

The passage of *V. cholerae* in the stools of a demographically randomized sample of the population of the Lagos area was carried out between February and April. No clinical cholera or contact with a case was found but five persons per thousand were asymptomatic excretors. They lived mainly in the areas where the concentration of population had outstripped the public services.

The spread and retreat of cholera are unpredictable; some of the factors will be discussed.

The Effects of Centralization in Haematology

A. A. SHARP (*Radcliffe Infirmary, Oxford*)

Expansion of laboratory haematology has necessitated the introduction of mechanical and automated equipment to contain the ever increasing workload. This revolution has shown the value of these machines both in terms of speed of working, numbers of tests handled, and accuracy. Further expansion is possible today and greater use of automated equipment is inevitable.

In terms of economics and availability of staff, centralization of this equipment in large, centralized laboratory areas appears inevitable. Considering the capital investment, machine potential, and the need for duplication of certain equipment, it would appear that the central laboratory should serve a population of 500,000 and receive between 500 and 1,000 tests per