A few laboratory workers collaborated with Ch in all cases with live CHF virus. None of these workers became infected or had any symptoms of indisposition during this period and no cases of CHF were suspected among close relatives. Ch became infected with CHF with an extremely severe course of the hemorrhagic syndrome. Ch died on 27 February 1970 despite several blood transfusions, inoculation of convalescent serum and plasma, and application of vasomotor and tonic drugs. A particularly severe infection form was aggravated by severe chronic liver infection (hepatocholecystitis) from which Ch had suffered for 6 years. This infection had become aggravated in February before the onset of CHF.

CONCLUSIONS

1. In Rostov Oblast and other USSR regions, as well as in foreign countries, CHF infection, beside transmissive routes, is also contracted by contact (when blood and blood-containing discharges reach the skin and mucosa) and during work in the laboratory (apparently by aerosols).

2. The incubation period was 2–6 days in persons infected by contact and in the laboratory.

3. Infections contracted in laboratories and hospitals allowed us to recommend greater precautions and accuracy by laboratory workers occupied with live CHF virus (while working with highly virulent infections and nursing patients with hemorrhagic syndrome).

Laboratory workers of infectious disease hospitals and laboratories working with CHF virus should be vaccinated against hemorrhagic fever.

Interrelationships between the Human Population and Vectors in the Rostov Oblast Crimean Hemorrhagic Fever Focus

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In the Rostov CHF natural focus, the human population becomes infected through contact with ticks, particularly *Hyalomma plumbeum*. Thus during the 1969 epidemic season several persons using V. N. Beklemishev's methods investigated human contact with pasture ticks in this focus. However, essential changes were introduced into this work plan owing to natural farm and vector ecology conditions of Rostov Oblast.

Field investigations were expanded to consist of 2 parts: (1) individual questioning of selected population groups on contact with pasture ticks with results noted on special forms; (2) collection of data for evaluating tick numbers in this region by counting tick numbers on different dairy herds grazing in definite pastures.

CHF foci essentially differ from those of tickborne encephalitis, even in areas where the human population is in contact with ticks. In the taiga, ticks more frequently attack humans in places distant from populated areas. Therefore, tickbite records are inevitably associated with the frequency, purpose, and duration of human presence in forest areas. A different situation is observed in CHF foci. These foci more frequently occur in steppe landscape pastures directly adjoining farmsteads. On the other hand, cultivated fields are distant from populated areas, cattle are not grazed here during the season of tick activity, and tick numbers are lower because of annual plowing of fields. Thus records of frequency and duration of human presence in pasture areas were very difficult to prove. It was also difficult to divide visitors to these areas into definite groups.

We divided the population into 3 groups according to possible contact with ticks: frequent, average, and infrequent contact. Sometimes we combined average and infrequent contact groups and compared them with the frequent contact group. The frequent contact group included persons subject to direct tick attack or having contact with tick-infected animals in pastures. Persons had contact with these ticks while collecting them from cattle or while handling animals. This group involved milkmaids, cattleyard workers, and other persons having contact with cattle. In 1 case (Repinaya), railway workers working daily far from the arable belt were also included in this group.

The average contact group included persons who regularly visited pastures near villages (mostly of the active population, including children) as well as housewives who privately own animals. This group usually consisted of almost the entire rural population, except persons of the 1st and 3rd group. It should be mentioned that persons were questioned in small populated areas where each settlement directly borders a typical rural pasture.

The infrequent contact group included persons who rarely moved about, such as pensioners, invalids, and employees not associated with fields, i.e. those who visited pastures only casually. Individual owners of cattle were also included in this group.

Investigations during the peak abundance season of *Hyalomma plumbeum* (June–July) included 60 local farms, 1,013 cattle for tick infestation, and 658 *Hyalomma plumbeum* plus about 100 specimens of other ticks collected from these cattle.