CHAPTER 6
CRIMEAN-CONGO HEMORRHAGIC FEVER IN TURKEY

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6.1. HISTORY OF CCHF IN TURKEY

The first published seroepidemiologic study on Crimean-Congo hemorrhagic fever (CCHF) in Turkey was performed in the Agean region of Turkey in the 1970s [30]. According to this study, Crimean-Congo hemorrhagic fever virus (CCHFV) antibodies were detected in 96 out of 1,074 (9.2%) human serum samples, by hemaglutination inhibition test. Likewise, neutralizing antibodies against the virus were detected in 13 out of 96 (13.5%) samples. However, prior to 2002, no clinical cases of CCHF or virus detections in ticks were reported from Turkey.

In 2002 and 2003, febrile hemorrhagic patients were being admitted to various hospitals in Eastern Anatolia, mainly in Tokat and Sivas provinces. In addition, a significant number of the patients were referred to the tertiary hospitals of Ankara (the capital of Turkey). Because of such an unexpected clinical syndrome in the region, the Ministry of Health (MOH) of Turkey launched the first epidemiologic investigational study in July 2003. According to the study’s report, the common epidemiological features of the patients included working in animal husbandry and history of tick bite. Clinically, all the patients had thrombocytopenia and most had leukopenia, elevated transaminases, especially aspartate transaminase (AST) and lactate dehydrogenase (LDH), fever, myalgia, nausea, and headache [33].

In Turkey, cases of viral hemorrhagic fever (VHF) had not been previously reported. Therefore, initially, endemic etiologic agents other than VHF were considered. Thus, sera of the hemorrhagic patients were tested for Rickettsia, Ehrlichia, Leptospira, and Coxiella; seven were reported as acute Q fever and treated accordingly [13]. Other than these bacteriologic causes, chemical or radioactive toxications were also considered. A scientific ad hoc committee of
MOH defined the problem cases and described the diagnostic, therapeutic, and preventive measures in the summer of 2003. The etiologic agent was not identified at that time, but the cases were classified as mild, moderate, and severe according to their thrombocyte count. Those with a thrombocyte count of 100–150,000/mL were defined as mild, 70–100,000/mL were moderate, and <70,000 were severe cases. The case definition as defined by the MOH was based on epidemiologic, clinical, and laboratory characteristics, and included:

- Working with animal husbandry or history of tick bite
- Individuals, who had fever, myalgia, malaise, diarrhea
- Patients who had leukopenia, thrombocytopenia, elevated AST, alanine aminotransferase (ALT), and LDH levels

The case management was performed under the referral system of the MOH. All the hospital expenses of the patients were covered by the MOH. Sera were collected at the national level in Refik Saydam Hygiene Center of MOH in Ankara. Doxycycline was suggested for all the suspected cases in case of bacteriologic etiology. In addition to the medical measures, preventive studies against ticks and education of medical and veterinarian personnel were initiated.

Sera of the patients were sent to the Institut Pasteur in Lyon, France for further studies. In August 2003, the serologic and molecular investigations at the Institut Pasteur revealed that the etiologic agent was CCHFV. This was the first VHF syndrome recognized in Turkey. All the measures previously taken were reevaluated and updated accordingly. By 2004, the MOH of Turkey collaborated with the Centers for Disease Control and Prevention, USA, and an extended ad hoc scientific committee has been working in accordance with the MOH since that time.


According to the current protocol established by the MOH, sera of suspected CCHF patients were sent to the Central Virology Laboratory of the Refik Saydam Hygiene Center. The management of suspected CCHF cases in Turkey is described in Fig. 6-1.

By the end of 2006, there were 1,103 confirmed cases and 59 deaths [1] (Fig. 6-2) from 716 rural villages, mainly located in the transition zone between the Central Anatolian plateau and northern-most mountains (Fig. 6-3). Most of the areas share similar geographical characteristics, such as small mountains bisected by streams, which form valley systems. The villages where CCHF occurred are surrounded by oak-dominated scrub forests, which are inhabited by dense populations of wildlife, especially hare and wild boar. Crop fields and pastures, which border the forests, are the main areas where human tick bites occurred.