Alarm bells over MERS coronavirus

Middle East coronavirus is causing alarm among researchers and international health officials. Neil Bennet looks at the unfolding situation.

Speaking at the close of the 66th World Health Assembly in Geneva, Switzerland, on May 27, WHO Director General Margaret Chan said: “Looking at the overall world health situation, my greatest concern right now is the novel coronavirus.”

The virus, which has now been named the Middle East respiratory syndrome (MERS) coronavirus, is the first lineage-C β coronavirus known to infect human beings. It is related to bat coronaviruses, but although an animal reservoir is suspected as the source of the infections, none has been identified. As of June 11, 55 confirmed infections and 31 deaths have been reported to WHO since the first case was identified in September last year. Most of the infections and deaths have occurred in Saudi Arabia, where a recent outbreak has centred on one healthcare facility in the Al-Hasa region.

“When the first case was detected in Saudi Arabia, the initial suspicion was that we were dealing with an isolated zoonotic event”, Ron Fouchier (Erasmus MC, Rotterdam, Netherlands) told TLD. Fouchier’s team characterised the virus isolated from the first reported case—a patient from Jeddah, Saudi Arabia.

Cases have since been reported in three other countries in the region—Jordan, Qatar, and the United Arab Emirates (UAE). Infections associated with travel or contact with a returned traveller have been reported in France, Germany, Italy, Tunisia, and the UK.

The second case was in London, UK, in a man who had recently travelled from Qatar. “Alarm bells went off, as the two cases were separated in time and space”, Fouchier continued. “With the cases imported into European hospitals, the retrospectively identified outbreak in Jordan, and the outbreak in Al-Hasa, this MERS outbreak starts to look like SARS more and more.”

According to WHO, all patients with laboratory-confirmed MERS coronavirus infection have had respiratory disease as part of their illness, with cough, fever, and breathing difficulties reported. Presentation can range from mild symptoms to severe pneumonia. Other reported clinical features include acute respiratory distress syndrome, renal failure, pericarditis, consumptive coagulopathy, and gastrointestinal symptoms. Infection can present atypically—without initial respiratory symptoms—in immunocompromised patients. No virus-specific treatment exists, although WHO has noted that general care can be life saving.

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The existence of clusters of infections was suggestive of person-to-person transmission, and recent reports have shown that such transmission has taken place, albeit only in healthcare settings and among close family contacts. A report in The Lancet of two cases in France described probable person-to-person transmission from a 64-year-old man who had recently visited Dubai, UAE, to a 51-year-old man with whom he had shared a hospital room for 3 days.

“The virus’s incubation period in the second patient appears to have been 9–12 days, which is somewhat longer than what was previously observed”, said Benoit Guery (University of Lille, Lille, France), one of the investigators of the report. “This finding has important implications for the duration of the quarantine required to rule out infection among contacts”, he added.

Another important finding of the investigation was that the virus could be reliably detected only in samples taken from the lower respiratory tract, with nasopharyngeal samples weakly positive or inconclusive. The authors also recommended that initial negative results should be confirmed by a further sample a few days later to rule out infection with the coronavirus.

Most cases have been in men, and many have been in individuals with comorbidities. “Many of the reported cases, including those believed to have been infected through nosocomial transmission, had underlying conditions and were associated with a degree of immunosuppression”, Andrew Amato-Gauci (European Centre for Disease Prevention and Control [ECDC], Stockholm, Sweden) told TLD. “These underlying conditions may be an important factor increasing vulnerability and the risk of transmission.”

However, uncertainty about possible risk factors for infection emphasises the many substantial gaps in our knowledge about the virus. “We do not know where the virus hides in nature”, Chan noted in her speech. “We do not know how people are getting infected. Until we answer these questions, we are empty-handed when it comes to manufacturing a vaccine.”

Margaret Chan during a meeting on the SARS-like virus coronavirus on May 23, 2013 at the World Health Assembly, Geneva
Rubella in Japan
As of June 4, more than 8500 cases of Rubella have been reported in Japan in 2013—more than three times the number of cases reported in 2012. Men aged 20–49 and women aged 15–29 years are most affected. Symptoms include fever, rash, and aching joints. Infection is most severe during pregnancy and can result in birth defects or miscarriage. The outbreak is likely to peak around June, and health authorities are urging adults to get vaccinated. Vaccination fees for adults at risk are being subsidised in certain prefectures.

Steroid injection infections
24 injection-site infections have been reported after administration of preservative-free methylprednisolone acetate, according to the US Centers for Disease Control and Prevention (CDC) on June 6, 2013. The US Food and Drug Administration (FDA) identified microbial contamination in unopened vials. The drug, shipped from the Main Street Family Pharmacy in Tennessee, has affected patients in Arkansas, Florida, Illinois, and North Carolina. Most patients developed skin and soft tissue infections and abscesses of unclear cause. The pharmacy has voluntarily recalled all of its sterile products.

Yellow fever in Ethiopia
The Ministry of Health of Ethiopia launched an emergency mass-vaccination campaign against yellow fever on June 10, 2013, with support from the GAVI Alliance and other partners, in response to the six laboratory-confirmed cases in the country. The campaign aims to reach more than 527 000 people in the six districts; the International Coordinating Group on Yellow Fever Vaccine Provision will supply more than 585 800 doses of vaccine.

Q fever outbreak in Hungary
Since May 7, 2013, an outbreak of Q fever with multiple cases of pneumonia has reached epidemic proportions in Baranya County, Hungary. 91 cases have been reported and 22 patients have been hospitalised with the high fever associated with the infection. Acute symptoms caused by the bacterium Coxiella burnetii usually develop within 2–3 weeks and include high fever, nausea, and chest pain. The epidemic is the first in Hungary in 20 years, and the source is unknown. The District Institute of Public Health are working with the county health department to interview hospitalised patients and take blood samples.