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March 4, 2020

**On viruses and mysterious deaths**

The death of fourteen persons and hospitalisation of some 350 persons living in localities near the Karachi harbour triggered all sorts of speculations a few weeks back.

It was speculated that these deaths were due to radioactive waste, or chemicals such as hydrogen sulphide, methyl bromide, aluminium phosphide and others. Analysis of the blood and urine of patients revealed that none of these were responsible.

There were several clues. First, the deaths corresponded to the arrival and unloading of a ship containing a large quantity of soybean. The deaths and illnesses stopped as soon as the ship was removed from the harbour, on the recommendation of the premier research laboratory of Pakistan, the International Center for Chemical and Biological Sciences at the University of Karachi.

The analysis carried out there on the blood and urine of patients established that the illness and deaths were caused by some allergic materials (‘aeroallergens’). A puzzling feature of the incident was that workers unloading the soybean consignment at the docks were not affected. This can be readily explained by the fact that allergens affect only a small percentage of the population that is sensitive to them; they do not affect the vast majority.

The analysis on the blood and urine of affected patients carried out by a team, led by Prof Iqbal Choudhary at the International Center of Chemical and Biological Sciences at University of Karachi, established that the Immunoglobin E (IgE) levels in most samples of affected patients were up to 10 fold higher than normal. These allergic reactions can lead to severe inflammation of the throat and lungs, causing difficulties in breathing, asphyxiation and, in some susceptible persons, even death.

If soybean dust was the cause of these illnesses and death, we need to understand why all persons exposed, particularly the dock workers, were not affected. The reason is simple and well documented in literature. Most persons are not allergic to soybean dust. Only a small percentage allergic to it would show any symptoms, and those severely allergic to it can die. This is typical for many allergic materials. Some persons are severely allergic to peanuts, prawns, fish and other food materials. Others are allergic to pollen and we find such allergies emerging in Islamabad in spring when the pollen count is high, though they are rarely of such severity.

That soybean dust was indeed the most probable cause of the incidents was revealed by a study of international literature. Similar incidents of death and illness associated with soybean dust have been reported in many countries. About 26 such epidemics from soya bean dust occurred in Barcelona, Spain during 1981-1986 when 20 persons died and about a thousand were hospitalized with severe respiratory problems. All these epidemics occurred during the unloading of soybean cargo in the Barcelona harbor.

Similar incidents have previously been reported in Naples (Italy), New Orleans (USA), France and in other countries. All such incidents stopped when special protective procedures were introduced in the unloading to prevent the soybean dust being spread into nearby areas by the wind. These are now standard operating procedures all over the world, and need to be adopted immediately by the Karachi Port Authorities, instead of trying to blame the incident on other factors. There is a tiny possibility that some allergic materials may have leaked from the two landfill sites near the harbor, but this is highly unlikely since there have been no such incidents after the ship HMV Hercules was removed from the Keamari harbor.

We must ensure that future unloading of soybean cargo should be carried out according to internationally prescribed procedures, involving installation of special filters in the unloading silos.

An even greater danger is now looming over Pakistan – that of coronaviruses. The disease caused by them has already crippled the Chinese economy and sent the world markets spinning into a dive, indicating that we may be at the verge of a huge worldwide recession. Coronaviruses are a group of viruses that were discovered in the 1960s and cause respiratory tract infections. Most of them cause only mild symptoms but some can be lethal. These include the SARS, MERS and COVID-19 viruses.

The word “corona”, derived from Latin, means ‘crown’, and it refers to the shape of the virus, which has an outer fringe resembling a crown. The first lethal class of these viruses, Severe Acute Respiratory Syndrome, SARS-CoV, was detected in Guangdong, China in November 2002. There were 8096 confirmed cases with 744 deaths. The mortality rate was quite high, with about 10 percent of those affected dying.

The second lethal type of coronavirus was the Middle East Respiratory Syndrome, MERS-CoV, that was detected in Jeddah Saudi Arabia in June 2012. There were 2494 confirmed cases, with 858 deaths, a very high mortality rate of about 37 percent. The fastest spreading of the three lethal types of coronaviruses, SARS-CoV-2, is the one affecting the world now. It was first detected in Wuhan China in December 2019 and there are already about 90,000 confirmed cases within about three months. Fortunately, the mortality is much lower with about 3.4 percent deaths.

The fact that it is spreading so fast makes it the most dangerous of all the varieties discovered so far. Another dangerous feature associated with it is that the antibodies that develop in the infected patients seem to lose their defensive capabilities after a few months, with the result that infected and cured patients can be re-infected.

Coronavirus is here in Pakistan and we are on the verge of a huge explosion. We cannot keep it out. It is already here. The challenge is to have a very strong system of detection of contacts of the infected patients and their isolation. The problem is complicated by the fact that the persons entering the country may already be infected and, being in an early stage, they may not show any symptoms such as fever or cough, but such persons may still infect others.

Therefore, there is no way to prevent infected persons from entering the country. We need to focus our efforts on a strong system for contact detection and their isolation in suitable quarantine facilities.

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