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EDITORIAL

FOOD BORNE DISEASES: A NEGLECTED PUBLIC HEALTH CHALLENGE IN PAKISTAN

Foodborne transmission of pathogenic and toxigenic microorganisms has been a recognized hazard for decades. The dangers of botulism from under-processed canned foods: staphylococcal poisoning from unrefrigerated cream-filled pastries, sliced ham. meat, and poultry salads; and salmonellosis from infected animal products were known even half century ago. Despite new protective measures, changes in preservation techniques and failure to follow recognized procedures have created new dangers.

Every year, foodborne infections cause millions of illnesses and thousands of deaths: most infections go diagnosed and unreported Although outbreaks make the news, most foodborne infections occur as individual or sporadic cases. Therefore, the sources of sporadic cases must also be investigated and understood.

In the developed world substantial progress has been made in preventing foodborne diseases. For example, typhoid fever, extremely common at the beginning of the 20th century, is now almost forgotten in the United States. It was conquered in the preantibiotic era by disinfection of drinking water, sewage treatment, milk sanitation and pasteurization, and shellfish bed sanitation. Similarly, cholera, bovine tuberculosis, and trichinosis have also been controlled in the US[1].

Preventing foodborne disease is a multifaceted process, without simple and universal solutions. For most foodborne pathogens, no vaccines are available. Consumer education about basic principles of food safety, an important component of prevention, by itself is insufficient. Food reaches the consumer through long chains of industrial production, in which many opportunities for contamination exist[1].

The epidemiology of foodborne disease is changing. New pathogens have emerged, and some have spread worldwide. Many, including Salmonella. Escherichia coli 0157:1-17, Campylobacter. and Yersinia enterocolitica. have reservoirs in healthy food animals, from which they spread to an increasing variety of foods. These pathogens cause millions of cases of sporadic illness and chronic complications, as well as large and challenging outbreaks over many states and nations[2].

Some known pathogens have only recently been shown to be predominantly foodborne. For example, Listeria monocytogenes was long known as a cause of meningitis and other invasive infections in immunocompromised hosts. Flow these hosts became infected remained unknown until a series of investigations identified food as the most common source[2]. Similarly, Campylobacter jejuni was known as a rare opportunistic bloodstream infection until veterinary diagnostic methods used on specimens from humans showed it was a common cause of diarrheal illness'.

These foodborne pathogens share a number of characteristics. Virtually all have an animal reservoir from which they spread to humans: that is. they are foodborne zoonosis. In marked contrast to many established zoonosis, this new zoonosis does not often cause illness in the infected host animal. The chicken with lifelong ovarian infection with Salmonella serotype Entcritidis. the calf carrying E. coli 0157:H7. and the oyster carrying Norwalk virus or V. vulnificus appear healthy; therefore, public health concerns must now include apparently healthy animals.

For reasons that remain unclear, these pathogens can rapidly spread globally. For example, Y. enterocolitica spread globally among pigs in the 1970s [4]; Salmonella serotype Entcritidis appeared simultaneously around the world in the 1980sx and Salmonella typhimurium Definitive Type (DT) 104 is now appearing in North America. Europe, and perhaps elsewhere; therefore, public health concerns must now include events happening around the world, as harbingers of what may appear here.

The foods contaminated with emerging pathogens usually look, smell, and taste normal, and the pathogen often survives traditional preparation techniques: E. coli 0157:H7 in meat can survive the gentle heating that a rare hamburger gets[0]: Salmonella Entcritidis in eggs survives in an omelette; and Norwalk virus in oysters survives gentle steaming[8].

Contamination with the new foodborne zoonosis eludes traditional food inspection, which relies on visual identification of foodborne hazards. These pathogens demand new control strategies, which would minimize the likelihood of contamination in the first place. The rate at which new pathogens have been identified suggests that many more remain to be discovered. Many of the foodborne infections of the future are likely to arise from the animal reservoirs from which we draw our food supply.

Food industry is traditionally a cottage industry in Pakistan, with no checks and controls on procurement or production, packaging and storage. A number of street factories are producing a variety of food products. Candies and sweets are

now a days being made in highly unhygienic conditions. The mineral water has become a status symbol, but no one knows where it is coming from and arc the producers supplying what they claim? Canned foods arc also becoming popular, but the hygienic safety of canning material being used has never been determined. No one has tested the shelf life of packed foods available in the market. Here it is worth mentioning that the food that has a shelf life tested in colder countries where that is packed, may have lesser shelf life in hot countries. Expired food items, specially candies and chocolates are diverted to our country' from the gulf states by the suppliers, for the reason that writing or reading expiry date on these is not in vogue over here. Frozen meat and poultry arc entering into the market and still no one thinks or even knows about the probability of diseases that have led to slaughtering of millions of dollars' worth of poultry and meat in the developed world. A couple of companies that arc printing the expiry date on their products have not done their own studies and are relying on western norms. Refilling of bottles of famous brand beverages is done in totally unhygienic conditions, and finding of insects inside these is common, what to say of the microbes. The companies easily get away by telling that a lot of fake bottlers are in the market. Cold storages are storing fruits and vegetables of all sorts, to make an easy profit in off-season, but there is no check on them either.

Our cooking technique generally destroys all the harmful agents in the food (in addition to decreasing its nutritional value) therefore it is the uncooked portion of our diet that is causing most of the food borne diseases. This includes vegetables, fruits, milk, dairy products, sweets, candies, canned food, mineral water, juices etc.

The duty of researchers is to bring the true picture without exaggerations to lime light. The support of undeniable data is the only way to pressurize the health authorities to look at this aspect of prevention of disease. Without concrete evidence in this regard we cannot pave way for a "Supreme Controlling Organization" like FDA of the US. Without routine standard and quality checks, the manufacturers and suppliers will never improve themselves. Cancellation of a few big brand names will divert the enormous money of multinationals to find and finish the fakes from the market. A powerful control on production, packaging, storage and transport of all the food items is the need of the day, and our duty is to get as clear a picture as is possible by looking into this multi-faceted problem. Outbreak investigations and case-control studies of sporadic cases can identify sources of infection and guide the development of specific prevention strategic. Belter understanding of how pathogens persist in animal reservoirs is also critical to successful long-term prevention.

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