Prevalence and sources of food borne infections attributed to drug resistant pathogens in street food of Karachi, Pakistan - A risk to public health

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Introduction: Foodborne illnesses are a major cause of public health concern in developing countries. In the metropolitan city of Karachi, Pakistan, street vended food is very popular, acting as a major contributing factor of gastrointestinal diseases mainly due to contaminated food and water. This qualitative study was carried out to assess the microbial quality of street food and to determine the factors contributing to foodborne infections.

Methodology: A brief survey about hygiene and sanitation practices, demographics, food storage conditions and location of carts was conducted with twenty-six randomly selected street food vendors from average socioeconomic areas of Karachi, Pakistan. Hand washing water samples were collected in sterile bottles as a sample. Food items included lentil burger, chick peas, juices, fried items, meat curry items, ice-cream and fruit cream. Vendors were educated about basic hand and food hygiene practices and provided with soap bars. Samples (n=52) were enriched and inoculated on differential and selective media, results were recorded based on growth, morphology and biochemical tests. Antibiotic susceptibility was measured using Kirby Bauer test.

Results: Survey revealed that most of the vendors were shabbily dressed and were illiterate without any food hygiene training, showing poor practices. All the hand washed water samples and food samples were contaminated with known human pathogens. All samples exhibited high resistance to antibiotics, Amoxicillin (80%) being highest, Augmentin (45%), Gentamicin (39%), Ceftazidime (34%), Ceftriaxone (11%) and Ciprofloxacin (35%). MRSA exhibited additional resistance to Vancomycin, Oxacillin and Linezolid. Organisms isolated from food showed more resistance than organisms isolated from hands.

Conclusion: This study provides evidence about deteriorating public health conditions due to unrestricted dissemination of food borne pathogens. Presence of drug resistant organisms should be a great concern for the government authorities, suggesting the need for proper implementation of food safety measures.

Recent Publications


Biography

Javeria Samad is a Biotechnologist by degree and has been working in Infectious Disease Research Laboratory (Molecular Biology Section) at The Aga Khan University, for the last seven years, mainly on Molecular Epidemiology of Enteric Diseases and Public Health aspects in pediatric population. She has a vast experience of Molecular Biology and Microbiology techniques and has been involved in multiple international research projects in collaboration with WHO, CDC, NIH, Bill & Melinda Gates foundation, University of Virginia (USA), University of Maryland (USA), University of Emory (USA). She was also part of biosafety activities and QC related activities in the research lab. Her work has been presented in some of the national & international conferences including IMED 2016, ASM Microbe 2016, 63rd ASTMH, Keynote symposia conference and IICE in April 2017. Currently she is enrolled in M.Phil./Ph.D. program as well as serving in an academic institute, Habib University (Karachi, Pakistan) as a Microbiology Researcher and Lab Instructor too.

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