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Short Communications

Study On Extraction Method And Sensitivity Of Molecular Detection Of Re-Emerging Food Poisoning Bacterial Toxins

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INTRODUCTION

Food poisoning happens all throughout the world. Numerous toxins that cause particular food poisoning syndromes are no longer confined to remote geographical areas. It is likely that a patient will present to any emergency department with the clinical symptoms of food poisoning given the increase in travel and the convenience of carrying food products. The ability to identifyparticular food poisoning syndromes enables emergency medical personnel to promptly begin the necessary treatment as well as to alert health departments and so stop further occurrences of food poisoning. This article analyses a number of probable food-borne toxins and discusses the mechanisms of toxicity, anticipated clinical manifestations, and standard treatments for each agent. Only three bacterial species are considered important causes of the intoxication type of food poisoning. These are *Bacillus cereus*, *Clostridium botulinum* and *Staphylococcus aureus*, all of which are capable of causing illness by producing toxins in food.

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There are several other species of *Bacillus* and *Clostridium* that have been reported to produce pre-formed toxins in food, such as *B. licheniformis* and *Cl. butyricum*, but these are uncommon and not considered further here.

Proposed Intervention

Lateral flow test systems use monoclonal, rather than polyclonal antibodies for improved specificity and is said to be suitable for the rapid (time to result 4.5 hours) screening of food samples as well as for confirmation of *B. cereus* in culture. Rapid ELISA- and reversed passive latex agglutination (RPLA) based methods are faster and simple to use.

Conclusion

Rapid methods for testing food samples for staphylococcal enterotoxins are much more widely available and better established than those for *B. cereus* toxins and botulinum toxins. The majority of commercially available methods use ELISA technology and are able to produce a result in a few hours. Commercial kits may be in microplate or tube format and sometimes include immunoaffinity columns (IAC) for concentration of toxins from foods. ELISA kits for identification of specific staphylococcal enterotoxins are also available from some suppliers. Automated test based on Enzyme-Linked Fluorescence Assays (EFLA) are available. Other commercially available test kits include an RPLA-based test from Oxoid, the SET-RPLA toxin detection kit. The food toxins reviewed in this article have the potential to cause significant illness and even death. Prompt recognition and treatment can be helpful in minimizing clinical effects. With increased travel and the ease of transporting foods, victims of these poisonings could present to any emergency department.

Keywords: Staphylococcal toxin, Botulisms, Salmonellosis, RPLA, ELISA

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