

Plastics: A Double Edge Sword

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Aim

A comparative study to isolate organisms from reusable plastic cover from hospital wards and household kitchens and their role in spread of infections and also the methods to prevent the same.

Introduction

Plastic is convenient, lightweight, unbreakable and relatively inexpensive. However, there are both environmental and health risk from the widespread use of plastics. Bisphenol A (BPA), a chemical that mimics the action of the human hormone estrogen, can leach from polycarbonate plastic. Bisphenol A has been found to stimulate prostate cancer cells⁷ and causes breast tissue changes in mice that resemble early stages of breast cancer in both mice and humans. Reusable bags for transport of groceries from the store to the consumer's home have become popular in recent years. Since these bags are often reused, and used potentially for multiple purposes, the possibility for contamination of food products as well as the consumer's hands. Most food borne illnesses are believed to originate in the home. Reuse of bags creates an opportunity for cross contamination of foods. Study was to assess the potential for cross contamination of food products from reusable bags used to carry groceries. It is recommended that the public needs to be educated about the proper care of reusable bags by printed instructions on the bags or through public service announcements improper cooking or handling of foods. Reusable bags if not properly washed between uses, create the potential for cross contamination of foods. The common use of bags for other purposes than carrying groceries is also a potential concern. Public unawareness of the potential risks seems almost universal. Thus, a sudden or significant increase in use of reusable bags without a major public education campaign on how to reduce the risk of cross contamination would create the risk of significant adverse public health impacts. Shoppers who do not regularly wash their reusable grocery bags may be placing themselves and their families at heightened risk of food borne illness. Reusable bags, if not properly washed between uses, create the potential for cross-contamination of food. This risk can be increased by the growth of bacteria in the bags. Fortunately, washing the bags by machine or hand reduced bacterial presence to nearly zero. Reusable grocery bags can be a breeding ground for dangerous food-borne bacteria and pose a serious risk to public health. Bacteria levels found in

reusable bags were significant enough to cause a wide range of serious health problems and even death. They are a particular danger for young children, who are especially vulnerable to food-borne illnesses.

Objectives

1. To identify the type of pathogenic bacteria isolated from the reusable plastic bags.

2. To find the different pathogens isolated in hospital and household kitchens.
3. To ascertain the potential role of reusable plastics in spread of hospital acquired infections.

Materials and Methods

Cross-sectional study

Sample Size

N1=100 from hospital wards N2=50 from household kitchens

Source of data

This is a cross-sectional study carried out in the Department of Microbiology, Bowring and Lady Curzon Hospital, Bangalore Medical College and Research Institute. The 100 plastics were taken from the wards of the 4 attached hospitals of BMCRI and 50 are taken from household kitchen.

Study design

A prospective microbiological, non randomized, non controlled study with 150 samples for anaerobic culture in two conditions is undertaken to study the plastics as potential source of infections in hospitals and in household kitchens.

Inclusion criteria

Plastics which are used for more than once.

Exclusion criteria

Plastics which are used more than once.

Collections of swab

A total two sets of swabs were taken one set was from hospitals and another from household kitchens. Plastic bags were collected from patients in wards of 4 attached hospitals of BMCRI. A total of 100 swabs were taken and most of the bags were PVC and 50 were taken from household kitchen. Plastics were sampled by using sterile swab sticks and by swabbing the entire inner surface of plastic cover and immediately transported to lab.

Results

Results will be discussed at the presentation.