Due to weakened immune function, listeriosis is particularly associated with ‘at-risk’ consumers, predominantly affecting pregnant women, older adults (aged >65 years) and people receiving chemotherapy for the treatment of cancer.

Incidence of listeriosis is frequently related to consumption of ready-to-eat (RTE) food products consumed in the domestic kitchen. Given the psychosocial characteristics of listeria monocytogenes, time and temperature control of RTE food is required to reduce the risks associated with listeriosis, recommended practices include:

- Ensure safe refrigeration temperatures (≤5°C).
- Adhere to ‘use-by’ dates on RTE foods.
- Consume RTE foods within two days of opening.

Changes in UK epidemiology trends have identified a reduction in pregnancy associated listeriosis among these ‘at-risk’ consumer groups. Due to weakened immune function, listeriosis is particularly associated with ‘at-risk’ consumer groups. Detecting a reduction in pregnancy associated listeriosis among these ‘at-risk’ consumer groups will indicate why reduced pregnancy associated listeriosis in the home which may contribute to the increased association of listeriosis in the home may contribute to the increased association of listeriosis in the home.

No significant differences in knowledge and self-reported practices were determined, with majority of all ‘at-risk’ consumers (≥18 years old) reporting consumption of foods beyond the ‘use-by’ date (p>0.05) indicating awareness of consuming RTE foods two days within opening. Consume RTE foods within two days of opening:

- Although older adults attitudes to this study were determined to be significantly (p<0.01) more negative towards consuming RTE foods within two days of opening than pregnant women and chemotherapy patients/family caregivers. No significant differences in knowledge and self-reported practices were determined, with majority of all ‘at-risk’ consumers (≥18 years old) reporting consumption of foods beyond the ‘use-by’ date (p>0.05) indicating awareness of consuming RTE foods two days within opening.

Table 1. Comparison of older adults (aged >65 years) pregnant and post partum (≤10 months) women (n=84) and chemotherapy patients/family caregivers (n=123) knowledge, attitudes and self-reported practices of listeriosis risk factors

Purpose

The aim of the study was to compare the cognitive and behavioural risk factors associated with listeriosis among these ‘at-risk’ consumer groups.

Methods

Questionnaire development - A systematic review of literature informed design and development of a questionnaire aimed at self-complete questionnaire to evaluate food safety knowledge, self-reported practices and attitudes related to domestic food handling and storage practices associated with listeriosis.

Sample - Participants were recruited according to predefined criteria, the study included:

- Older adults (aged ≥65 years) (n=126).
- Pregnant and post partum (≤10 months) women (n=84).
- Chemotherapy patients and family caregivers (n=60 months post-treatment)

Data analysis - IBM SPSS statistics (17.0), Microsoft Office 2007 and Access 2007 were used to conduct quantitative and statistical analysis of the data.

Results

As indicated in Table 1, the study determined the knowledge and self-reported practices of older adults, pregnant women, chemotherapy patients/family caregivers that participated in the study were engaging in unsafe refrigeration temperatures, adhering to ‘use-by’ dates on RTE foods, and consuming RTE foods within two days of opening. Statistical analyses were conducted to determine significant differences between identified listeriosis risk factors according to consumer group, findings from the analyses include:

Ensure safe refrigeration temperatures:
- Awareness of safe refrigeration temperatures was determined to be significantly greater (p<0.01) among chemotherapy patients/family caregivers, with older adults determined to be least knowledgeable of recommended practices. Older adults (n=84) had more negative attitudes towards refrigeration than older adults and chemotherapy patients/ family caregivers. No significant difference were determined (p>0.05) self-reported refrigeration practices, however, the majority of all respondents reported refrigeration temperatures would be “never” checked.

Adhere to ‘use-by’ dates on RTE foods:
- The study determined that older adults were significantly low knowledge (p<0.01) of ‘use-by’ dates, had more negative attitudes (p<0.05) towards ‘use-by’ dates and were more likely to report safety malpractices among older adults. Older adults (n=84) had more negative attitudes towards refrigeration than older adults and chemotherapy patients/family caregivers.

Consume RTE foods within two days of opening:
- Although older adults attitudes to this study were determined to be significantly (p<0.01) more negative towards consuming RTE foods within two days of opening than pregnant women and chemotherapy patients/ family caregivers. No significant differences in knowledge and self-reported practices were determined, with majority of all ‘at-risk’ consumers (≥18 years old) reporting consumption of foods beyond the ‘use-by’ date (p>0.05) indicating awareness of consuming RTE foods two days within opening.

Significance of study

- Significant differences in knowledge, attitudes and self-reported practices between ‘at-risk’ consumers may indicate why reduced pregnancy associated cases and increased older adult and chemotherapy associated cases are reported in the UK. Engagement with targeted food safety education may be contributing to the observed reduction in pregnancy associated listeriosis cases in the UK.

- Lack of knowledge, negative attitudes and reported implementation of food safety practices among these ‘at-risk’ consumer groups may increase the risks associated with listeriosis in the home which may contribute to the increased association of this consumer group with incidence of listeriosis.

- Consequently, to increase the knowledge of listeriosis risk factors, to improve attitudes towards domestic food safety, and to enhance food safety practices in the homes of ‘at-risk’ consumers, there is a need for targeted food safety education for older adults and chemotherapy patients and their family caregivers to enable successful engagement with education to reduce the incidence of listeriosis among these ‘at-risk’ consumer groups.

Acknowledgement

The authors wish to acknowledge Prof. Louise Fielding (LSBE to 2012) for her support of the research.

References


Ellen W. Evans* & Elizabeth C. Redmond

*Corresponding author: elevans@cardiffmet.ac.uk

ZERO2FIVE® Food Industry Centre, Cardiff School of Health Sciences, Cardiff Metropolitan University, Wales, UK.

Comparison of Listeriosis Risk Factors Among Three ‘At-Risk’ Consumer Groups: Pregnant Women, Older Adults and Chemotherapy Patients