Association between Seafood Sensitization and Immediate Hypersensitivity Reactions to Iodinated Radiologic Contrast Media: A Case-controlled Study

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Background: Iodinated radiologic contrast media (RCM) have been widely used to facilitate radiographic imaging modality. Approximately 75 million doses of RCM are administered annually. Immediate hypersensitivity reaction occurred in 3.8%-12.7% and 0.7%-3% of patients receiving ionic and nonionic RCM, respectively. Allergic reactions may play some roles in this type of reactions to RCM following the reports that these reactions are associated with history of reaction to prior RCM injection and allergic conditions, such as asthma and other drug allergies. There are still controversies on the associations between seafood sensitization and RCM hypersensitivity. However, no previous study has been reported on the use of skin prick test (SPT) to seafood as a tool to confirm this controversial association.

Objective: To determine the association between seafood sensitization & other interested risk factors and immediate hypersensitivity reactions to iodinated RCM in the exposed patients.

Method: A case-controlled study was conducted in patients previously exposed to radiocontrast media in Phramongkutklao Hospital and Maharaj Nakorn Srithammarat Hospital. Subjects who participated in the study were categorized as “Case” if any immediate hypersensitivity reaction occurred during or immediately after the iodinated RCM exposure. Whilst, subjects without immediate hypersensitivity reaction during or immediately after the iodinated RCM exposure were categorized as “Control”. Interested risk factors were collected from every subject. SPT to commercial seafood allergens (shrimp, crab, fish and clam) were done in every subject of both groups. The association between seafood sensitization and immediate hypersensitivity reactions to iodinated RCM were then calculated for odds ratio (OR).

Result: There were 167 subjects, 79 males (46.99%) and 88 females (53.01%). Fifty patients were in the “Case” group and 117 patients were in the “Control” group. The overall mean age was 50.29±17.74 years. SPT results were positive in 2 (4%) and 4 (3.4%) subjects in the “case” and the “control” groups, respectively. ORs for each interested risk factor were 1.12 (0.35-3.55) for positive SPT to seafood, 1.13 (0.53-2.4) for previously diagnosed seafood allergy, 1.12 (0.49-2.59) for previous diagnosed aeroallergen allergy, 0.65 (0.23-1.83) for diabetes mellitus, 0.74 (0.42-1.29) for hypertension, 0.69 (0.34-1.38) for dyslipidemia, 1.29 (0.65-2.54) for asthma, 0.47 (0.16-1.37) for allergic rhinitis, 0.54 (0.15-1.95) for ischemic heart disease, and 1.21 (0.58-2.56) for previous history of drug allergy, all without statistical significance.

Conclusion: There is no statistically significant association between immediate hypersensitivity reactions to iodinated RCM and seafood sensitization positivity indicated by SPT, with previous diagnosis of seafood allergy, aeroallergen allergy, diabetes mellitus, hypertension, dyslipidemia, asthma, allergic rhinitis, and ischemic heart disease, as well as prior history of drug allergy.

Keywords: Radiologic contrast media, Immediate hypersensitivity reaction, Seafood allergy, Skin prick test