Presence of undeclared egg and milk allergenic proteins in foods: multi-year survey in Northern Italy

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Aims: Exposure to milk and egg protein is usually high due to the presence of their derivatives (milk or egg powder, caseins or lysozime) in high number of food products. Food allergen labelling is critical in ensuring that consumers make safe choices. Regional Reference Laboratory for Food Allergies and Intolerances (CReALIA) receives food samples to be analyzed according to European Legislation (Regulation CE 1169/2011) in order to verify the compliance of food labelling concerning the presence of allergens in foods.

Methods: The sampling program for monitoring undeclared allergens in foods has been in place since 2007 in Piedmont (North-West Italy).
In the latest 5 years (2010-2014) a total of 1566 samples were analyzed to verify the absence of undeclared egg proteins (n=775) and milk proteins (n=791).
All collected samples did not mention the presence of the two allergens nor in the ingredients list nor in the voluntary labelling information (such as “may contains”).
Target proteins for milk were represented by Betalactoglobulin and was detected using the ELISA Ridascreen Fast Betalactoglobulin kit (R-Biopharm AG, Darmstadt, Germany). Egg allergens were detected using the ELISA Ridascreen Fast EL/Egg Protein kit (R-Biopharm AG).

Results and Discussion: Totally, 44/1566 (2.8%) samples resulted uncompliant for the presence of undeclared allergens: egg proteins were present in 16/775 samples (3.6%) and betalactoglobulin was present in 16/791 samples (2%). The 28 positive samples for egg proteins were represented by meat preparations (n=19), bakery products (n=4), fish products (n=3) and pasta (n=2). The 16 positive samples for betalactoglobulin were represented by meat preparations (n=12), infant food (n=3) and bakery products (n=1). Quantification of the two hidden food allergens we investigated is not required as no safety criteria for milk and egg proteins has been established by EU Food Safety Regulations.

Conclusion: In conclusion, the total number of positive samples in this multi-year survey was about 3%: considering the high variability of the physiological response to food allergens, it is clear that all efforts are needed to reduce this percentage of uncompliant samples. The presence of undeclared allergens in foods poses a potential health risk for sensitized consumers. Food business operators are responsible for accurate indication on the food label of the presence of these ingredients or the potential contamination with allergens.