The usefulness of serum tryptase in the diagnosis of shrimp anaphylaxis in children

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**Background:** Anaphylaxis is a life-threatening allergic reaction, and foods are one of the most common culprits. Serum tryptase is marker of mast cell activation and could use to confirm anaphylaxis to shrimp.

**Objective:** To determine the utility of serum tryptase in the diagnosis of shrimp-induced anaphylaxis.

**Methods:** Twenty-one patients with previous allergic reaction from shrimp were recruited into a prospective study for shrimp challenge. Twelve patients developed mild allergic reaction and nine patients developed anaphylaxis. Serum tryptase were obtained before shrimp challenge and 1 hour after the onset of symptoms.

**Results:** In both groups of patients, median tryptase levels were significantly elevated after the onset of shrimp challenge as compared to baselines (baseline tryptase - 1.08, peak tryptase - 2.33 2g/L in anaphylaxis group; baseline tryptase -1.49, peak tryptase 1.56 2g/L in non-anaphylaxis group, p < 0.05). The delta tryptase (peak minus baseline) values in the anaphylaxis group was significantly higher than non-anaphylaxis group (1.33 VS 0.125 2g/L, p = 0.0004). The tryptase ratio (peak divided by baseline) values in the anaphylaxis group was also significantly higher than non-anaphylaxis group (2.11 VS 1.055, p = 0.0001). Using the recommended cut-off range (peak tryptase ≥ 12.0 2g/L) the sensitivity of such cut-off was 0.11 with specificity of 1.0.

**Conclusion:** We recommend using serial tryptase values, including tryptase ratio and/or delta tryptase values, for the diagnosis of food-induced anaphylaxis. The latter two values may be helpful than peak serum tryptase.

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