In some cases of allergens that cause immediate complex reactions, such as those to drug allergens, specific IgE fails to give absolute diagnostic reliability. Whilst drug provocation tests remain the gold standard for diagnosis of immediate drug allergies, they are very time-intensive procedures associated with the significant risk of severe and potentially fatal reactions. Likewise, skin prick and intra-dermal testing are slow and risk severe reactions. *In vitro* tests such as specific IgE to drugs offer a limited range of drugs that can be tested.

**Basophil Activation Tests (BAT)** provide an alternative test that does not carry risks to the patient. They have emerging potential in assisting in the clinical work-up and diagnosis of immediate drug allergies.

Here a team from the Department of Immunology, University Hospital Southampton NHS Foundation Trust, describe an example of their experience using BAT in a clinical setting.

Yoon Tak Chin, Bryan Fernandes, Adnan Mani, Clive McLean, Efrem Eren. University Hospital Southampton NHS Foundation Trust, Laboratory medicine, Division of Diagnostics and Therapy Department of Immunology.

“Our clinical team had a case of a 12-year old girl who developed anaphylaxis immediately after taking ibuprofen and amoxicillin. In this situation we found use of the Basophil Activation Test (BAT) has been helpful.

Ordinarily, drug allergy testing to ibuprofen would involve a drug provocation challenge while drug allergy testing to penicillin would involve a series of skin prick and intradermal tests. However, in view of the severity of the reaction, the young girl, her mother and our Paediatric colleagues were understandably reluctant to perform these tests.

Instead a blood sample was taken and tested using the Bühlmann Flow CAST® BAT kits. Results for ibuprofen and amoxicillin were both positive. BAT was negative for other agents including aspirin, penicillin major determinants and penicillin minor determinants. This data helped define the Paediatric Team’s management plan, without putting the young girl through a long procedure or the risk of a severe reaction.

There are studies showing that BAT can be helpful in diagnosing immediate allergy to some drugs, particularly muscle relaxants such as rocuronium (sensitivity 91.7% and specificity 100%) and NSAIDs (sensitivity 42.3%-56.7% and specificity 83%-100%). Further studies are needed to evaluate the usefulness of BAT for other drugs.

References: