

# Clinical manifestations and impact on daily life of allergy to polyethylene glycol (PEG) in ten patients

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## Abstract

### Background

Polyethylene glycols (PEGs) are widely used as excipients in drugs, cosmetics and household products. Immediate-type allergy to PEGs including anaphylaxis is rare. The recent introduction of the mRNA-based COVID-19 vaccines has led to an increased focus on PEG as a possible culprit of allergic reactions to the vaccines. A low awareness of the allergenic potential of PEG among consumers, manufacturers and doctors leads to under-diagnosis and under-reporting of allergy to PEGs, putting patients at risk of repeated severe reactions.

### Objectives

To investigate clinical manifestations, time to diagnosis and impact of a PEG allergy diagnosis on the daily life of patients diagnosed with allergy to PEG from 2010 to 2019.

### Method

Ten patients diagnosed with allergy to PEG were included. Detailed clinical history was obtained, and allergy investigations had been performed at the time of diagnosis. All patients were contacted and asked to retrospectively complete a questionnaire about causes and impact on daily life of an allergy to PEG, scored on a likert scale (0–10) before and after diagnosis.

### Results

Eight patients had experienced at least one anaphylactic reaction requiring adrenaline treatment. Anaphylaxis was primarily caused by antibiotic/analgesic tablets, depot-steroids, antacids and laxatives. Seven patients reported repeated reactions before diagnosis (median 3, range 2–6). Median time from first reaction to diagnosis was 20 months (range 2–120). None of the patients experienced severe allergic reactions after the diagnosis. Median likert score of the impact on daily life before diagnosis was 7 compared with 4 after diagnosis.

## Conclusion and clinical relevance

The clinical manifestations of PEG allergy are often dramatic. Improved awareness about the clinical presentation and common culprits, clear product labelling and a standardized nomenclature is needed to ensure the timely diagnosis of PEG allergy to prevent repeated anaphylactic reactions with severe impact on patients' lives.