Recommendations for the Use of Propofol in Egg-Allergic Patients

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J Investig Allergol Clin Immunol 2019; Vol. 29(1): 72-74
doi: 10.18176/jiaci.0337

Key words: Propofol. Egg allergy. Propofol in egg-allergic patients. Propofol in food-allergic patients. Anesthetic and food allergy.

Palabras clave: Propofol. Alergia al huevo. Propofol en pacientes alérgicos al huevo. Propofol en pacientes alérgicos a alimentos. Anestesia y alergia a alimentos.

Propofol (diisopropylphenol) is a short-acting intravenous anesthetic agent that was introduced for clinical use in 1977. It has been approved by the Spanish Agency of Medicines and Health Products (AEMPS) and the United States Food and Drug Administration (FDA) for the induction and maintenance of general anesthesia in adult and pediatric patients.

According to the summary of product characteristics, propofol is an emulsion containing soybean oil, purified egg phosphatide, and egg lecithin. Contraindications include hypersensitivity reactions to any of its components (eg, soy, peanuts, and egg) [1]. In addition, warnings in package inserts regarding food allergies have reduced the use of this drug in allergic patients

Propofol is the sedative of choice for endoscopy and is extensively used by many centers around the world. Nevertheless, data on its application and contraindications in food-allergic patients are scarce. In addition, most publications on this subject are from anesthesia or gastroenterology journals.

Views on how to use propofol in egg-allergic patients are contradictory. Some publications recommend avoiding this drug in all egg-allergic patients [2], some only in cases of previous anaphylactic reaction to this food [3], while others conclude that avoidance is not recommended in egg-allergic patients, since allergic reactions are due to egg-white proteins, while lecithin, the substance contained in propofol, is a phosphatide of the yolk [4,5]. In addition, the results of skin prick testing (SPT) with propofol and egg lecithin were negative in children with clinically proven egg allergy [5]; therefore, it is not recommended to perform skin tests with propofol before administering it.

The most recent literature contains only 2 case reports of anaphylaxis attributed to propofol in atopic children with multiple food allergies [2,6]. However, careful analysis of the cases enables anaphylaxis to be ruled out in one patient [2] and indicates that uncontrolled underlying asthma or latex anaphylaxis may have been involved in another [6].

In a study of 28 egg-allergic children receiving propofol (43 administrations), 2 with a past history of anaphylaxis, only 1 (previous anaphylaxis to egg) experienced an immediate nonanaphylactic allergic reaction, which occurred 15 minutes after administration of the drug. The SPT result with propofol was positive (3 mm). No other egg-allergic child reacted to this drug [3].

Food allergies have led to less frequent use of propofol in patients with eosinophilic esophagitis. This contraindication has become increasingly problematic given the rising incidence of food allergy and eosinophilic esophagitis. However, retrospective studies did not show risk when propofol was used in these patients. In 2017, Mehta et al [7] analyzed 1365 esophagogastroduodenoscopies with propofol in children with eosinophilic esophagitis and food allergies. Molina-Infante et al [8] studied 70 patients sensitized to various foods, including egg, soybean, and peanut (one-third allergic), with a total of 404 upper endoscopies performed using propofol. They found no differences in the rate of adverse events between food-allergic and nonallergic patients. Therefore, propofol could be safely administered in egg-allergic patients.

In 2013, Baombe et al [9] performed a systematic review of 92 articles to assess evidence for recommending avoidance of propofol in egg-allergic patients. The authors concluded that although propofol is probably safe in patients with nonsevere allergy to egg, a previous history of anaphylaxis is traditionally thought to be a contraindication; therefore, the final decision remains at the discretion of the physician after a cautious risk-benefit assessment [9].

Given the evidence that the use of propofol in egg-allergic patients is not fully established, the Childhood Allergy Committee of the Spanish Society of Allergy and Clinical Immunology explored usual practice in Spanish hospitals and highlighted the need to draft recommendations on the use of propofol in egg-allergic patients. Twenty-six allergy departments responded to a questionnaire. Only 6 had administered propofol to egg-allergic patients, with no adverse reactions reported. In the remaining 20 departments, the use of propofol in these patients is avoided. Most see a need for consensus on whether the drug should be administered in egg-allergic patients (Table). The survey shows that, although there is currently no scientific evidence to support avoidance of propofol in patients with egg allergy, allergists working in many Spanish hospitals continue recommending avoidance of the medication in this population (Table).

There are no national or international guidelines on how to approach the administration of propofol in patients with egg allergy, since data are limited, although recommendations have been made. First, as propofol is administered by personnel trained to recognize and treat anaphylaxis working under supervised conditions, administration of propofol to egg-allergic patients with no previous history of anaphylaxis is recommended either directly or with minimal predose testing.

Table. Use of Propofol in Egg-Allergic Patients: Survey Results

Allergology Department	Patients Attended	Habitual Use of Propofol	Propofol Avoidance Recommendation for Egg Allergic Patients	Propofol-Induced Adverse Reactions	Protocol in Place	In Favor of Drafting SEAIC Document
Hospital de Cruces, Baracaldo	Adults	Yes	Yes	Yes (patient not allergic to egg)		Yes
Complejo Hospitalario de Navarra	Adults Children	Yes	Yes	No	No	Yes
Hospital de Basurto, Bilbao	Adults Children	Yes	No	No	No	Yes
Hospital Universitario Central de Asturias	Adults Children	Yes	Yes	No	No	No
Hospital Torrecárdenas Almería	Adults Children	Yes	Yes	No	No	Yes
Hospital Reina Sofía. Córdoba	Adults Children	Yes	No	No	No	
Complejo Hospitalario de Granada	Adults	Yes	Yes	No	No	Yes
Complejo Hospitalario Juan Ramón Jiménez, Huelva	Adults Children	Yes	Yes	No	No	Yes
Hospital Regional Universitario de Málaga	Adults	Yes	Yes	No	No	Yes
Complejo Hospitalario de Jaén	Adults Children	Yes	No	No	No	No
Hospital Universitario Virgen de la Arrixaca, Murcia	Adults	Yes	Yes	Yes (patient not allergic to foods)	No	Yes
Hospital Universitario La Paz	Adults Children	Yes	No	No	No	No
Fundación Jiménez Díaz, Madrid	Adults Children	Yes	Yes	No	No	Yes
Hospital Universitario Rio Ortega, Valladolid	Adults Children	Yes	Yes	Yes (patient allergic to soy. Final diagnosis: allergy to propofol)	Yes	Yes
Hospital Clínico de Salamanca	Adults Children	Yes	Yes	Yes (nonallergic patient)	No	Yes
Hospital Regional Universitario Infanta Cristina, Badajoz	Adults Children	Yes	Yes	No	No	Yes
Hospital Universitario Joan XXIII de Tarragona	Adults Children	Yes	Yes	No	No	Yes
Hospital Vall d'Hebron, Barcelona	Adults	Yes	No	No	No	Yes
HGU Gregorio Marañón, Madrid	Adults	Yes	Yes	Yes (nonallergic patient)	Yes	Yes
Hospital Infantil Univ. Niño Jesús, Madrid	Children	Yes	Yes	Yes (nonallergic patient)	No	Yes
Hospital Virgen del Valle, Toledo	Adults Children	Yes	No	Yes (nonallergic patient)	No	No
Hospital Clínico San Carlos, Madrid	Adults Children	Yes	Yes	No	No	Yes
Hospital Gregorio Marañón, Madrid	Adults Children	Yes	-	No	No	Yes
Clínica Universidad de Navarra	Adults Children	Yes	Yes	Yes (nonallergic patient)	No	Yes
Hospital Universitario Infanta Elena, Madrid	Adults Children	Yes	Yes	Yes (nonallergic patient)	No	Yes
Hospital Puerta del Hierro, Madrid	Adults Children	Yes	Yes	No	No	Yes

[a]Abbreviation: SEAIC, Sociedad Española de Alergia e Inmunología Clínica (Spanish Society of Allergy and Clinical Immunology).

Second, for patients with a history of anaphylaxis, options include selecting another anesthetic or giving an initial small trial dose of propofol. If this is tolerated, the dose can be escalated until the full anesthetic dose is reached [10].

Based on published data, the expert allergists of the Childhood Allergy Committee of the Spanish Society of Allergy and Clinical Immunology have made the following recommendations on the administration of propofol by anesthesiologists in egg-allergic children:

- Patients with a history of anaphylaxis due to egg might receive an alternate anesthetic or start with a small trial dose of propofol. If this is well tolerated, the full anesthetic dose can be reached gradually.
- There is no contraindication for propofol in patients with nonanaphylactic egg allergy.

Acknowledgments

We would like to thank Dr. Esther Moreno and María José Torres, on behalf of the Drug Allergy Committee of SEAIC, for document review and support and Oliver Shaw for his help with the English version of the manuscript

Funding

The authors declare that no funding was received for the present study.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

References

1. Audicana Berasategui MT, Barasona Villarejo MJ, Corominas Sánchez M, De Barrio Fernández M, García Avilés MC, García Robaina JC, et al. Drug Allergy Committee of the Spanish Society of; Allergology and Clinical Immunology (SEAIC). Potential Hypersensitivity due to the food or food additive content of medicinal products in Spain. Potential hypersensitivity due to the food or food additive content of medicinal products in Spain. J Investig Allergol Clin Immunol. 2011;21(7):496-506
2. Hofer KN, McCarthy MW, Buck ML, Hendrick AE. Possible anaphylaxis after propofol in a child with food allergy. Ann Pharmacother. 2003;37(3):398-401.
3. Murphy A, Campbell DE, Baines D, Mehr S. Allergic reactions to propofol in egg-allergic children. Anesth Analg. 2011 Jul;113(1):140-4.
4. Asserhøj LL, Mosbech H, Krøigaard M, Garvey LH. No evidence for contraindications to the use of propofol in adults allergic to egg, soy or peanut. Br J Anaesth. 2016 Jan;116(1):77-82.
5. Dewachter P, Mouton-Faivre C, Castells MC, Hepner D. Anesthesia in the patient with multiple drug allergies: are all allergies the same? Curr Opin Anaesthesiol. 2011 Jun;24(3):320-5.
6. Tashkandi J. My patient is allergic to eggs, can I use propofol? A case report and review. Saudi J Anaesth. 2010;4:207-8.
7. Mehta P, Sundaram SS, Furuta GT, Pan Z, Atkins D, Markowitz S. Propofol use in pediatric patients with food allergy and eosinophilic esophagitis. J Pediatr Gastroenterol Nutr. 2017;64(4):546-9.
8. Molina-Infante J, Arias A, Vara-Brenes D, Prados-Manzano R, Gonzalez-Cervera J, Alvarado-Arenas M, et al. Propofol administration is safe in adult eosinophilic esophagitis patients sensitized to egg, soy, or peanut. Allergy. 2014;69:388-94.
9. Baombe JP, Parvez K. Towards evidence-based emergency medicine: best BETs from the Manchester Royal Infirmary. BET 1: is propofol safe in patients with egg anaphylaxis? Emerg Med J. 2013 Jan;30(1):79-80.
10. Dziedzic A. Is propofol safe for food allergy patients? A Review of the Evidence. SAAD Dig. 2016 Jan;32:23-7.

Manuscript received July 16, 2018; accepted for publication October 8, 2018.

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