

# Does age impact adverse events in adolescents and young adults treated with PEG-asparaginase treatment at a Canadian pediatric tertiary hospital? A retrospective review examining the role of age in the presentation of PEG-asparaginase side effects

Lesleigh Abbott<sup>1</sup>, Maia Claveau<sup>1</sup>, Kenneth Tang<sup>2</sup>, Jameason Cameron<sup>1</sup>, and Genevieve Gouet<sup>1</sup>

<sup>1</sup>Children's Hospital of Eastern Ontario

<sup>2</sup>Children's Hospital of Eastern Ontario Research Institute

April 16, 2024

## Abstract

Background: Adolescents and young adults (AYA) with cancer have less favorable outcomes than other populations for lymphoid malignancies. Pediatric patients have a better survival rate for lymphoid malignancies and current evidence suggests that asparaginase plays a role in improved response to treatment. This study aimed to evaluate if AYA patients at a pediatric hospital were more likely to experience PEG-asparaginase (PEG-ASP) related adverse events than younger patients. Methods: A retrospective chart review from 2007-2017 was conducted in the pediatric population at the Children's Hospital of Eastern Ontario (CHEO). Only patients having received PEG-ASP were included. Event incidence and risk related to age at diagnosis was assessed through parameter estimates and Wald Chi Square analysis. Results: In total, 75 adverse events were observed: 34/186 (18.3%) experienced allergic reactions, 8/186 (4.3%) pancreatitis, 31/186 (16.7%) thrombosis and 2/186 (1.1%) hemorrhage. 182 patients had complete information for inclusion in our model. A correlation between age at diagnosis and higher risk of allergic reaction ( $p < 0.001$ ) and pancreatitis ( $p < 0.035$ ) was observed. Conclusion: Allergic reaction and pancreatitis upon administration of PEG-ASP have a higher risk of occurrence as age of diagnosis increases. This includes the AYA population and warrants precaution as PEG-ASP is included in older populations treatment regimens at pediatric centers.

## Hosted file

1-Main Document\_PBC\_PEGAYA\_Abbott\_Nov 9 2021.docx available at <https://authorea.com/users/457795/articles/712103-does-age-impact-adverse-events-in-adolescents-and-young-adults-treated-with-peg-asparaginase-treatment-at-a-canadian-pediatric-tertiary-hospital-a-retrospective-review-examining-the-role-of-age-in-the-presentation-of-peg-asparaginase-side-effects>

## Hosted file

2-Table 1\_PBC\_PEGAYA\_Abbott\_Oct 7 2021.docx available at <https://authorea.com/users/457795/articles/712103-does-age-impact-adverse-events-in-adolescents-and-young-adults-treated-with-peg-asparaginase-treatment-at-a-canadian-pediatric-tertiary-hospital-a-retrospective-review-examining-the-role-of-age-in-the-presentation-of-peg-asparaginase-side-effects>

## Hosted file



