Background: Alemtuzumab demonstrated efficacy superior to that of subcutaneous interferon beta-1a (SC IFNβ-1a) in a 3-year efficacy and safety trial with early, active relapsing-remitting multiple sclerosis (MS) patients, significantly reducing the relapse rate and risk for sustained accumulation of disability and reducing mean disability compared with baseline (all comparisons P < .001). One notable adverse event was immune thrombocytopenia (ITP), affecting six alemtuzumab-treated patients and one IFNβ-1a patient. **Objectives:** To present long-term follow-up of ITP cases occurring after alemtuzumab treatment and to review the safety monitoring program for early detection of ITP. **Methods:** A total of 334 patients were randomized 1:1:1 to receive IFNβ-1a (44 μg SC 3 times per week), 12 mg/day alemtuzumab, or 24 mg/day alemtuzumab. Alemtuzumab was administered intravenously (IV) during two or three brief annual cycles. After the identification of ITP among alemtuzumab-treated patients, the protocol was amended to provide patient and investigator education and surveillance via monthly complete blood counts and ITP symptom surveys. ITP patients are monitored for 4 years from ITP diagnosis. **Results:** The index case was fatal. A risk monitoring program was put into place, and five additional cases were identified. ITP onset occurred between 1.5 and 16 months after the last alemtuzumab dose. After the fatal index case, all ITP patients achieved durable remission. At 35 to 48 months after ITP diagnosis, all five surviving patients have normal platelet counts with no sequelae. No additional cases of ITP have been identified so far from CAMMS223. Details of the treatment of ITP case histories will be presented along with specifics of the ITP patient and physician education and safety monitoring program. **Conclusions:** Long-term follow-up indicates that ITP occurring after alemtuzumab appears self-limited in some cases and responsive to medical treatment in other cases. Alemtuzumab-associated ITP appears to be monophasic: once achieved, remission is durable. To date, with increased surveillance, identification of ITP has been timely, and so far no cases have been diagnosed more than 16 months following the last alemtuzumab cycle.

**Supported by:** Genzyme

**Disclosure:** E.J. Fox: Genzyme (other financial benefit); CAMMS223 Study Group: Genzyme (other financial benefit).

**Keywords:** disease-modifying treatment in MS