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Poster Abstract: Therapeutic

Survival and Developmental Milestones Among Pompe Registry Patients with Classic Infantile-Onset Pompe Disease with Different Timing of Initiation of Treatment with Enzyme Replacement Therapy

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Pompe disease presents as a clinical spectrum with variable severity, progression, and muscle involvement. Early clinical diagnosis and initiation of enzyme replacement therapy (ERT), before the development of serious, irreversible symptoms, is important, especially in classic infantile-onset Pompe disease (IOPD). Untreated classic IOPD, characterized by symptom onset at ≤12 months of age with progressive cardiomyopathy and generalized muscle weakness causing severely delayed motor development and compromised respiratory function, has reported 12-month survival rates ranging from 8% to 25.7% overall, and 16.9% ventilator-free.[1,2] We assessed survival, ventilator-free survival, and motor developmental milestones in classic IOPD patients enrolled in the Pompe Registry (sponsored by Genzyme, a Sanofi company). All classic IOPD patients (symptom onset at ≤12 months of age with cardiomyopathy) with a record of receiving ERT in the Registry were eligible for analysis. Patients were divided into those with a recorded first ERT infusion at <3 months and at ≥3 months of age for comparison. Events were defined as death and use of invasive ventilation therapy or death, and developmental milestones, including motor milestones. The time to the event was derived as the time from birth. A total of 140 classic IOPD patients were eligible for analysis. Patients in the <3 month ERT initiation group (n=36) were diagnosed earlier than those treated at ≥3 months of age (n=104): at 1 month vs 4.8 months of age, respectively. Patients who started ERT at <3 months of age had better survival rates at 36 months than patients who started ERT at ≥3 months of age (81% vs 61%, respectively). The same patterns were seen for invasive ventilator-free survival rates at 36 months (76% vs 56%). After 3 years of therapy, when compared with infants who started ERT at ≥3 months of age, more infants who started ERT at <3 months showed greater muscle

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strength in the arms (pulls self to stand: 72% vs 47%) and legs (bears weight on legs: 79% vs 66%). Results were similar when patients from Taiwan, who may have been identified by newborn screening and not clinical diagnosis, were excluded. Earlier initiation of ERT in classic IOPD patients appears to improve the chances of survival and leads to better retention of muscle strength and improvement of symptoms in these young patients affected most severely by Pompe disease.

REFERENCES

[1] van den Hout HM, Hop W, van Diggelen OP, Smeitink JA, Smit GP, Poll-The BT, Bakker HD, Loonen MC, de Klerk JB, Reuser AJ, van der Ploeg AT. The natural course of infantile Pompe's disease: 20 original cases compared with 133 cases from the literature. Pediatrics. 2003;12(2):332-40.

[2] Kishnani PS, et al. A Retrospective, multinational, multicenter, study on the natural history of infantile-onset Pompe disease. J Pediatr 2006;148(5):671-76.