ANALYSIS OF OVERALL SURVIVAL (OS) IN PATIENTS WITH ACID SPHINGOMYELINASE DEFICIENCY TYPE B USING THE STANDARDIZED MORTALITY RATIO METHOD

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Background: Acid sphingomyelinase deficiency (ASMD - historically known as Niemann-Pick disease) is a rare, progressive, often fatal lysosomal storage disease that affects major organs, and presents variably across a range of severities.

This study uses a prospective (US, EU, Brazil), longitudinal study sponsored by Sanofi Genzyme (59 patients with 0.01-11.04 years follow-up), aiming to characterize the disease-related morbidity and mortality in children and adults with ASMD type B.

Purpose: To describe the use of the standardized mortality ratio (SMR) as a possible alternative approach in the analysis of overall survival (OS) in ASMD type B patients.

Methods: The SMR was calculated using mortality data from the prospective study and life-tables from the US general population (2017). The SMR was further expressed as a weighted average of two SMRs using a HR estimated from the same study: SMR1 for patients with severe splenomegaly (≥ 15 MN), and SMR2 for patients without severe splenomegaly (< 15 MN) at baseline. The SMRs were applied to life-table mortality data to estimate OS in ASMD type-B patients (overall and by spleen volume subgroups).
**Results**: The calculated overall SMR was 12.50 [95% CI: 4.33, 20.67]. The wide confidence interval reflected the small sample size. The SMRs for patients with and without severe splenomegaly were 43.05 and 4.31, respectively.

**Conclusions**: This study extends our knowledge in estimating OS in rare conditions where only few events may be recorded and standard parametric survival analyses may not be appropriate to provide reliable mortality estimates.