**ABSTRACT** - Updated!

**METHODS**

**Objectives**: To assess the safety and responses of voreloxin in the frontline treatment of elderly patients with newly diagnosed acute myeloid leukemia (AML). Voreloxin is a DNA damaging agent targeting replication-dependent DNA replication and is a first-in-class replication-dependent site-selective DNA damaging agent that causes cell death. The study is a Phase 2, open-label, multi-center trial with 2 treatment schedules: A (72 mg/m², days 1, 8, and 15) and B (72 mg/m², days 1, 8, and 15). The study is designed as a 2-stage Green-Dahlberg design with interim evaluation at Stage 1. The primary objective is to assess the efficacy of voreloxin in frontline treatment of elderly patients with newly diagnosed AML (either de novo or from an antecedent hematologic disorder [AHD]) age 60 and older with at least one of the following adverse factors: age ≥70 years; adverse cytogenetics, intermediate or unfavorable cytogenetics, or associated with lower response rate and increased risk of early mortality, especially age ≥70 years. The secondary objectives include determining the efficacy, tolerability, and safety of voreloxin in the frontline treatment of elderly patients with newly diagnosed AML. The study is designed to enroll 29 patients per stage to assess the treatment efficacy and to expand to 55 patients if the response rate and the 30-day all-cause mortality rate meet the criteria. The study will also evaluate the ex vivo activity of voreloxin in baseline bone marrow aspirates (BMA) using the Glo® assay (Cancer 2006, 2007) and will correlate the results with clinical outcomes. The study will also evaluate the ex vivo activity of voreloxin in baseline bone marrow aspirates (BMA) using the Glo® assay (Cancer 2006, 2007) and will correlate the results with clinical outcomes. The study will also evaluate the ex vivo activity of voreloxin in baseline bone marrow aspirates (BMA) using the Glo® assay (Cancer 2006, 2007) and will correlate the results with clinical outcomes.

**RESULTS**

**Efficacy**

**Overall Remission Rate (CR + CRp)**: 52% (9/21) for Stage A and 52% (7/13) for Stage B. The overall remission rate was similar between the two treatment schedules (52% vs. 52%). The 30-day all-cause mortality rate was 4% (1/21) for Stage A and 30-day all-cause mortality rate was 6% (1/13) for Stage B. The 30-day all-cause mortality rate was within historical limits in the literature; the majority of deaths resulted from infectious complications. Infection complications comprised the majority of SAEs.

**Safety**

**Pharmacodynamic:** Schedule A vs Schedule B

Infection complications comprised the majority of SAEs.

**Study Objectives and Trial Design**

**Phase 2 study of voreloxin (SNS-595) as single agent therapy for elderly patients with newly diagnosed acute myeloid leukemia (AML): Preliminary Safety and Clinical Responses**

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