Nursing Roles in Cardiac Safety: Romidepsin in Patients With T-Cell Lymphoma

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Purpose/Objectives: To provide information to help nurses mitigate cardiac risks among patients receiving romidepsin (Istodax®), a histone deacetylase (HDAC) inhibitor approved by the U.S. Food and Drug Administration for the treatment of relapsed/refractory cutaneous and peripheral T-cell lymphoma.

Data Sources: Clinical studies of romidepsin represented the primary data sources. Supporting references included class information on HDAC inhibitors, as well as data regarding the impact of electrolyte imbalances and antiemetic treatment on electrocardiogram (ECG) data.

Data Synthesis: Cardiac concerns during treatment with romidepsin are multifactorial. Electrolyte deficiencies, which are associated with ECG abnormalities and dysrhythmias, are common among patients with T-cell lymphoma. In addition, clinically insignificant changes in the corrected QT interval reported with romidepsin are primarily attributable to concomitant use of prophylactic antiemetics and likely exaggerated by transient increases in heart rate.

Conclusions: Data support the cardiac safety of romidepsin while cautioning about the need for nurses' vigilance regarding consistent electrolyte supplementation, appropriate antiemetic selection, and heart rate monitoring.

Implications for Nursing: By recognizing drug-related and non–drug-related influences on cardiac safety during treatment with romidepsin, as well as other anticancer agents, nurses can identify risks, report them, and recommend appropriate interventions, which, ultimately, facilitates improved patient outcomes.

Romidepsin (Istodax®) is a novel, potent class 1 selective histone deacetylase (HDAC) inhibitor (Bolden, Peart, & Johnstone, 2006; Bradner et al., 2010; Tan, Cang, Ma, Petrillo, & Liu, 2010). In 2009, the drug received U.S. Food and Drug Administration (FDA) approval for the treatment of cutaneous T-cell lymphoma (CTCL) in patients who have received one or more prior systemic therapy. In 2011, romidepsin was approved for the treatment of peripheral TCL (PTCL) in patients who have received one or more prior therapy (Celgene Corporation, 2014) after pivotal phase II studies exhibited durable disease responses with manageable toxicity (Coiffier et al., 2012; Whittaker et al., 2010). In patients with PTCL, the objective response rate (ORR) was 25% (33/130), including 15% with confirmed/unconfirmed complete response and a median duration of response (DOR) of 28 months (Coiffier et al., 2014). In patients with CTCL, the ORR was 34% (33/96), including 6% with CR and a median DOR of 15 months (Whittaker et al., 2010).

Other HDAC inhibitors have received FDA approval. Vorinostat (Zolinza®) (Merck & Co, Inc., 2013) and belinostat (Beleodaq®) (Spectrum Pharmaceuticals, 2014) are also approved by the FDA for the treatment of relapsed/refractory (R/R) CTCL and PTCL, respectively, whereas panobinostat (Farydak®) is approved by the FDA in combination with bortezomib (Velcade®) and dexamethasone (Baycadron®) for the treatment of patients with multiple myeloma who