

# Cerebellar Assessment for Patients Receiving High-Dose Cytarabine: A Standardized Approach to Nursing Assessment and Documentation

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Cerebellar toxicity is a known potential adverse effect of high-dose cytarabine chemotherapy. Oncology nurses are expected to assess patients receiving high-dose cytarabine for cerebellar toxicity prior to administering each dose. Information regarding cerebellar assessment techniques and documentation of findings is limited in the nursing literature. This article provides nurses with a standardized approach for cerebellar function assessment and documentation of assessment finding for patients receiving high-dose cytarabine therapy.

At a Magnet® community hospital-based outpatient infusion clinic setting, chart audits and staff interviews identified significant inconsistencies in cerebellar assessment techniques and related documentation for patients receiving high-dose cytarabine. High-dose cytarabine traditionally is used in patients with a diagnosis of refractory non-Hodgkin lymphoma, acute myeloid leukemia, or in refractory or recurrent acute lymphoblastic leukemia.

The inconsistencies were identified as a safety issue because high-dose cytarabine can produce central nervous system toxicity, more specifically, cerebellar toxicity (Amen, 2007; Hensley et al., 2000). Neurologic toxicity presents in 12%–50% of patients receiving high-dose cytarabine (Hensley et al., 2000; Hwang, Yung, Estey, & Fields, 1985; Nand, Messmore, Patel, Fisher, & Fisher, 1986). Neurologic impairment is noted with cumulative doses ranging from 12–36 g/m<sup>2</sup> (Nand et al., 1986). The neurologic impairment may be irreversible if no actions are taken to detect and manage it (Hwang et al., 1985).

Fortunately, the neurologic impact of high-dose cytarabine toxicity can be mitigated if it is identified early and appropriate precautions are applied (Hwang et

al., 1985; Lundquist & Holmes, 1993). Because of the neurologic risk, nurses should conduct a proper cerebellar assessment in addition to a general neurologic assessment (including muscle strength and Glasgow Coma Scale) prior to administration (Amen, 2007; Lundquist & Holmes, 1993; Nand et al., 1986).

In the outpatient setting where the author works, physicians do not routinely round on patients. For example, a patient receiving high-dose cytarabine once every 12 hours for a total of six doses may see the physician or nurse practitioner in the office prior to the three days of therapy and then again in the office after the three days of therapy are completed. Therefore, nurses at the bedside must understand the toxicity risks of the drug, how to assess for them, and how to adequately document assessment findings. Nurses also must understand actions to take in the event that neurologic toxicity is identified. Nurses can better advocate for patient safety by promptly and accurately identifying neurologic impairment which could otherwise result in perma-

nent neurological damage or a delay in therapy (Lundquist & Holmes, 1993).

Cerebellar toxicity is a dose-limiting toxicity associated with high-dose cytarabine (Herzig et al., 1987). The standard of practice for toxicity management is to hold the chemotherapy and notify the physician immediately for any documented toxicities (cerebellar, ocular, or cutaneous) associated with the administration of high-dose cytarabine (Hensley et al., 2000; Hwang et al., 1985; Lundquist & Holmes, 1993).

## Methods

This issue was regarded as a patient safety priority for the organization, a team was formed that included the inpatient neurology and oncology nurse educators, as well as an informatics nurse who is responsible for technical development of electronic flowsheets for nursing documentation. Oncology and neurology physicians were consulted for content validity. The inpatient neurology and oncology units expressed interest in

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