The kidney conundrum: Evaluating the value of ifosfamide in cancer therapeutics.

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Abstract

Introduction: Ifosfamide is an alkylating chemotherapeutic agent used in the treatment of various neoplasms. Its main adverse effects include renal damage. **Methods**: A comprehensive review was conducted, including 100 articles from the Scielo, Scopus, and EMBASE databases. **Results**: Ifosfamide-induced nephrotoxicity is attributed to its toxic metabolites, such as acrolein and chloroacetaldehyde, which cause mitochondrial damage and oxidative stress in renal tubular cells. An analysis of reported cases in the literature showed an average age of 29 years, with no gender predominance. In oncology patients treated with ifosfamide, a mortality rate of 13% has been observed. Currently, no fully effective therapeutic strategy exists for preventing ifosfamide-induced nephrotoxicity; however, hydration, forced diuresis, and other interventions are employed to limit renal damage. Long-term renal function monitoring is essential for patients treated with ifosfamide. **Conclusions**: Ifosfamide exhibits a broad spectrum of antitumoral activity but may induce nephrotoxicity, adversely affecting the prognosis of oncology patients. Therefore, a thorough evaluation of the risks and benefits associated with its use is necessary.

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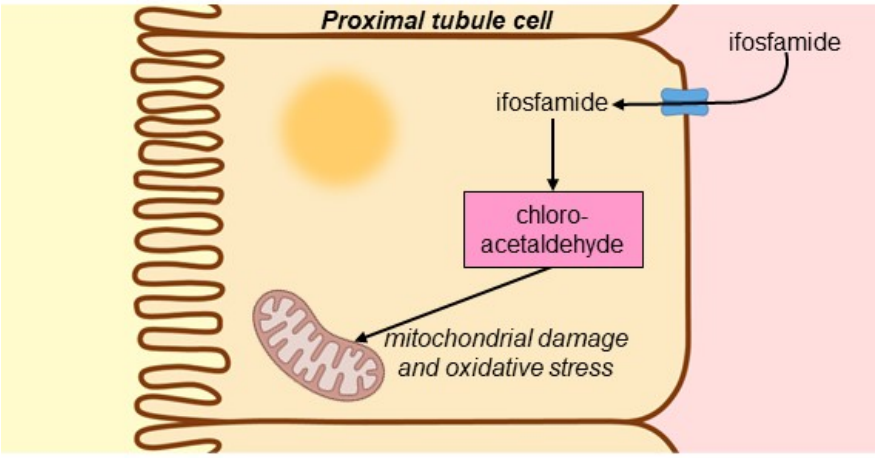

Ifosfamide-induced nephrotoxicity mainly presents as proximal tubular dysfunction. There are no effective preventive strategies. Long-term renal function monitoring is mandatory.