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Treatment of Acute Promyelocytic Leukemia in Patients With Renal Failure on Hemodialysis

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INTRODUCTION

In combination with all-trans retinoic acid (ATRA), arsenic trioxide (ATO) represents the first-line treatment for acute promyelocytic leukemia (APL).

AIM

Discuss the management of APL in patients with renal failure on HD and report two cases effectively treated with ATO dosed three times a week.

REVIEW OF LITERATURE

- From 1990 to 2024, 7 cases of first-line APL management in patients with ESRD on HD and 3 cases of first-line APL management in patients who required HD during the course of their treatment for complications of APL were reported.
- ATO doses ranged from 10 mg IV twice a week post-HD to 10 mg IV daily.

CASE REPORTS

TABLE 1. CASE REPORTS*

Characteristics	Patient 1	Patient 2
Age	36	58
Sex	Male	Male
Clinical presentation leading to diagnosis of APL	Presented with fatigue, dyspnea, bruising and blood per rectum, was found to have pancytopenia, disseminated intravascular coagulation (DIC), respiratory failure requiring intubation, and acute renal failure requiring HD.	He had prior history of ESRD on HD who presented with fatigue, dyspnea, melena, and pancytopenia.
Treatment	ATRA, ATO, anthracycline	ATRA, ATO
Complications	Noted above	Differentiation syndrome
Outcome	He is in complete remission (CR) 3.5 years after presentation and had a successful renal transplant.	Achieved CR

ATO IV at fixed dose of 10 mg three times per week after HD

+

ATRA at standard dose

=

Complete remission

*Both patients received ATRA at the standard dose of 45 mg/m^2/day with ATO intravenously at fixed dose of 10 mg three times per week after HD.

CONCLUSION

ATO is safe and effective at a flat dose of 10 mg IV 3 times a week after HD for patients with renal failure on HD.

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