۱۸ همایش سراسری انجمن خون و سرطان کودکان ایران
با موضوع (تازه های درمان سارکوم در کودکان)
۱۹ - ۲۰ شهریور ماه ۱۴۰۴ (مرکز همایش های شهدای سلامت مشهد)

Management of Renal Complications in Children with Sarcoma: An Emerging Role for Pediatric Onco-Nephrology

Seyed Amirhossein Fazeli*

***Taleghani General Hospital, Division of Nephrology, Department of Internal Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.**

Abstract

Pediatric onco-nephrology is an emerging field addressing kidney complications in children with cancer, integrating oncology and nephrology to improve outcomes.

Renal complications in pediatric sarcoma are divided into early- and late-onset. Early complications include acute kidney injury (AKI) from nephrotoxic chemotherapeutics such as ifosfamide, cisplatin, and methotrexate, tumor lysis syndrome, and obstructive uropathy. Nephroprotective measures consist of hydration, urine alkalinization, mesna, and antioxidants such as N-acetylcysteine, alongside close monitoring and dose adjustments.

For severe AKI, renal replacement therapies such as continuous renal replacement therapy (CRRT) modes—continuous venovenous hemofiltration (CVVH), hemodialysis (CVVHD), and hemodiafiltration (CVVHDF)—are employed for optimal solute clearance and hemodynamic stability. Adjunct dialysis techniques, including high-cutoff membranes and adsorptive dialysis, enhance removal of toxic metabolites, supporting cancer treatment efficacy.

Late-onset complications often manifest years post-therapy and include chronic kidney disease (CKD), hypertension, radiation nephropathy, and tubular dysfunctions like Fanconi syndrome. These arise from cumulative exposure to nephrotoxic chemotherapy (platinum agents, ifosfamide), abdominal radiotherapy (≥15 Gy), nephrectomy, and anthracycline use. Hypertension exacerbates renal injury, accelerating CKD progression. Early detection through biomarkers, imaging, and vigilant clinical follow-up enables timely intervention. Managing modifiable factors like hypertension is key to preventing end-stage renal disease.

The establishment of pediatric onco-nephrology in Iran is anticipated as a collaborative effort among oncologists, nephrologists, and dialysis specialists to enhance clinical care, research, and education, ultimately improving outcomes for children with cancer-related renal complications nationwide.