

Malignancy in hemodialysis patients – incidence, screening, management

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Observational studies have suggested an increased cancer risk in dialysis patients than in the general population. End-stage renal disease (ESRD) patients have an increased risk of malignancy for several reasons, including the presence of chronic inflammation, an impaired immune system, previous treatment with immunosuppressive drugs, malnutrition, and altered DNA repair. Urologic cancer and virus-associated cancers are more common in dialysis patients. Because of acquired cystic kidney disease, the incidence of renal cell carcinoma increase in dialysis patients. Long-term use of analgesics and oral cyclophosphamide are risk factors for bladder cancer. The higher prevalence of infection with hepatitis B and C probably result in an increased incidence of liver cancer. Human papillomavirus (HPV) infection is a predisposing factor for the development of cervix cancer and tongue cancer. In contrast, breast, lung, and colorectal cancer are not more common in dialysis patients than in the general population.

Although cancer risk is higher in dialysis patients than in the general population, the screening protocol has not yet been established. The problem of malignancy in dialysis patients is usually ignored because of the overwhelming number of deaths due to cardiovascular and infectious diseases in this population. However, malignant disease is becoming much more important with the progressive aging of dialysis patients and their prolonged life spans. Recent studies have suggested that routine cancer screening is not cost-effective for most dialysis patients because their expected survival is short. An individualized approach to cancer screening is most appropriate for dialysis patients. The patient's specific risk factors for cancer development (family history, comorbid diseases, etc), expected survival, and candidates for kidney transplantation may be considered in cancer screening.

Some clinical caveats of cancer screening tests should be considered when applying these tests to dialysis patients. Mammography in women with ESRD is likely to be confounded by vascular calcifications. A positive stool occult blood test occurs at a higher frequency in this population due to an increased incidence of nonmalignant gastrointestinal abnormalities. Most tumor markers are not removed effectively by dialysis and serum levels may also rise with hemoconcentration after hemodialysis. Therefore, many tumor markers yield false-positive results in dialysis patients, limiting their clinical effectiveness.

Once diagnosed, cancer in a hemodialysis patient is generally treated as in the nondialysis patient with appropriate consideration of the renal clearance, dosing, and dialyzability of anti-cancer agents. Although many drugs require dose adjustments in dialysis patients, few data that address the response of

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dialysis patients to cancer treatment are available. This review includes the recent evidence of cancer risk in the ESRD population and screening and anti-cancer treatments in dialysis patients.