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Are acquired cystic kidney disease and autosomal dominant polycystic kidney disease risk factors for renal cell carcinoma in kidney transplant patients?

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Implication for health policy/practice/research/medical education:
Relation between kidney cystic disease and renal cell carcinoma after kidney transplantation is still a controversial subject and further studies are require to provide a better understanding of this important clinical issue. We recommend a strict follow-up with annually ultrasonography in such patients.

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Editorial

The potent immunosuppressive agents predispose the kidney transplant patients to the development of several malignancies. Primary renal cell carcinoma (RCC) accounts 4.6% of all cancers among kidney transplant recipients, 90% in native kidneys and 10% in the allograft (1). Only 45 cases of allograft RCC have been reported by the Cincinnati Transplant Tumor Registry (2). Apart from a few isolated case reports, there have been only three largest case series including 3 of 1250, 5 of 1073 and 8 of 2050 RTRs had RCC (3-5). Between 1984 and 2008, we diagnosed five RCC among 5532 kidney transplants (6). Lee et al. (7) showed that the prevalence of patients with RCC after renal transplantation was 0.8%. In a study by Cheung et al. (8), the prevalence of native kidney RCC after renal transplantation was 1.3%.

Several risk factors have been associated with RCC in kidney transplant patients include increasing age, male gender, previous exposure to carcinogens, genetic predisposition, acquired cystic kidney disease (ACKD) and older age of donor (1, 9). Older age and male gender were risk factors for development of RCC in our patients.(6)

Lee et al. (7) examined acquired cystic kidney disease (ACKD) development as a risk factor of

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RCC in the both groups. It is of interest of that ACKD was more likely to be occurred in the dialysis patients than the kidney transplant recipient. In addition ACKD occurrence was strongly correlated to the development of RCC in dialysis patients when compared to the kidney transplant recipient (7). This finding means that the incidence of ACKD seems to be lower in kidney transplant patients than in dialysis individuals. Schwarz et al. (9) reported a relatively high prevalence of RCC in kidney transplant patients with ACKD. Therefore, they concluded that ACKD was a risk factor for RCC among kidney transplant recipients and screening such as ultrasound should be performed for RCC in such patients, which consistent with study of Heinz-Peer et al. (10) reported a high prevalence of RCC in patients undergoing kidney transplantation.

In addition, Cheung et al. (8) showed a high prevalence of RCC in kidney transplant recipients with autosomal dominant polycystic kidney disease (ADPKD) (8), although the association of ADPKD with RCC is very rare (11). Therefore, they concluded that ADPKD was a risk factor for RCC among kidney transplant recipients and screening such as ultrasound should be performed for RCC in such patients (8), which consistent with study of Hajj et al. (12). They reported a high prevalence of RCC in patients with end stage kidney disease as well as patients undergoing kidney transplantation(12). However, the increased development of RCC associated with ADPKD compared to the general population is controversial (13,14). In our previous study, 5 of 5532 kidney transplants had RCC; none of them had ADPKD (6). Moreover, in a large retrospective study, we enrolled 164 of 3725 transplant patients had history of ADPKD, 73% male and 23% female (unpublished data). None of them had RCC, but post-transplant diabetes mellitus was occurred in 16.7% of all patients. One, five and ten renal allograft survivals were 87.0%, 78.4% and 70.6%, respectively. We concluded that graft outcome after short- and long-term follow-up was promising and ADPKD was not a risk factor for development of the post-transplant malignancy.

Although, relation between kidney cystic disease and RCC after kidney transplantation is still a controversial subject and further studies are require to provide a better understanding of this important clinical issue, we recommend a strict follow-up with annually ultrasonography in a such patients. Prompt and early diagnosis is the obvious cornerstone for successful management of these patients.

Conflict of interest

The author declared no competing interests.

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