腎移植術后 PRA 与移植肾功能
长期预后关系的研究

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【关键词】肾移植；群体反应性抗体；血清肌酐；供者特异性抗体；长期预后

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【Abstract】Objective To study the impact of panel reactive antibody (PRA) on the long-term prognosis of transplant renal function after renal transplantation. Methods The objects of this study were 224 patients, who underwent renal transplantation, received PRA test about 2 weeks after operation and followed up in Affiliated Beijing Friendship Hospital of Capital Medical University from January 1994 to December 2004. According to the PRA test results, the patients were divided into two groups: negative group (n=195) and positive group (n=29). PRA of patients in negative group were tested again in 2007. Serum creatinine (Scr) of patients in both groups were tested recently (from October 2013 to April 2014) to know about the renal function. The rates of long-term normal transplant renal function between PRA positive patients (including PRA re-test positive patients) and PRA negative patients were compared. Results In 29 cases of positive group, the re-test result in April 2014 showed that 18 cases were observed with loss (n=17) or decline (n=1) of renal function, and 11 cases were observed with normal renal function. In 195 cases of negative group, a total of 153 cases were re-tested with PRA negative in 2007, 148 cases were re-tested with normal renal function in April 2014, and 5 cases were observed with decline or loss of renal function. A total of 42 cases were re-tested...
with PRA positive in 2007 and the transplant renal function was observed decline or loss by varying degrees. There were a total of 71 cases with PRA positive before 2004 and when re-tested in 2007, and 11 cases were re-tested with normal renal function in April 2014. The rate of long-term normal transplant renal function was 15.5%. There were 153 cases with PRA negative and 148 cases were re-tested with normal renal function in April 2014. The rate of long-term normal transplant renal function was 96.7%. Significant difference was observed in the rates of long-term normal transplant renal function between PRA positive patients and PRA negative patients (P < 0.05). Conclusions PRA after renal transplantation has obvious impacts on the long-term prognosis of transplant renal function.

Key words Renal transplant; Panel reactive antibody; Serum creatinine; Donor specific antibody; Long-term prognosis

Currently, kidney transplant surgery pre-dik refers to the detection of antibody to the kidney transplant disease (PRA) has become a new indicator of the kidney transplant disease. Studies have shown that PRA is closely related to the kidney transplant disease, especially in the case of donors with positive history of antibody (donor specific antibody, DSA) PRA can trigger acute rejection reaction, directly causing kidney transplant failure. Therefore, the post-transplant kidney transplant patients need to complete kidney transplant function recovery, but after kidney transplant PRA is positive and not affect kidney transplant function. In this paper, we study the correlation between PRA and kidney transplant function for more than ten years of follow-up, and finally report the results.

1. Methods and Materials

1.1 General Information

The study was conducted from 1994 to 2004. In December 2004, 224 kidney transplant patients were included in this study. Among them, 140 were males and 84 were females, with an average age of 32-77 years (average age 46 years). According to the kidney transplant surgery pre-dik classification, 195 were classified as PRA positive, 29 as PRA negative. The kidney transplant function was evaluated using the CD3 gut transplant function. The study excluded patients with kidney transplant function for more than ten years.

1.2 Study Methods

In 1994, the patient was underwent a kidney transplant surgery. The kidney transplant function was evaluated using the CD3 gut transplant function. The study excluded patients with kidney transplant function for more than ten years.

2. Results

2.1 Two groups of kidney transplant function evaluation

Among the 29 patients, 17 patients with kidney transplant function loss (17 patients) or loss (1 patient), 11 patients with kidney transplant function normal (4 patients). Among the 195 patients, 153 patients with kidney transplant function loss, 4 patients with kidney transplant function loss, 5 patients with kidney transplant function loss, 230-233 μmol/L, 2 patients with kidney transplant function loss. In 2007, 42 patients with kidney transplant function loss, 3 patients with kidney transplant function loss, 4 patients with kidney transplant function loss, 28 patients with kidney transplant function loss. The study excluded patients with kidney transplant function for more than ten years.

2.2 Analysis of the data

Using SPSS 17.0 software for statistical analysis. The statistical analysis methods include Chi-square test, and the results of P < 0.05 is considered statistically significant.
H1A I、II类抗体阳性患者7例，2014年4月复查移植肾功能异常7例，其中下降4例，丧失3例（男4例，其中Ser 277～372 μmol/L者2例，肾功能丧失2例；女3例，其中Ser 231～255 μmol/L者2例，肾功能丧失者1例）。

2.2 PRA阳性及肾性患者移植肾功能长期正常率的比较

2004年前PRA阳性及2007年PRA阳性患者共71例，目前肾功能下降或丧失患者60例，肾功能正常患者11例，移植肾功能长期正常率为15.5%。PRA阳性患者153例，目前肾功能正常患者148例，肾功能下降或丧失患者5例，移植肾功能长期正常率为96.7%。PRA阳性患者和PRA阴性患者的移植肾功能长期正常率比较，差异有统计学意义（χ² = 151.47，P < 0.005）。

3 讨 论

业已证明，供、受者之间HLA位点配型数、受者术前PRA水平、供肾冷藏缺血时间是影响肾移植术后早期移植肾失功的高危因素[4]。肾移植术后发生排斥反应大多与肾移植受者体内存在抗HLA抗体有关[5,6]，肾移植术前无移植史的患者体内存在的抗HLA抗体一般由输血、妇女妊娠所致，且此类患者如有针对移植供者的抗HLA抗体，在肾移植术后极易发生移植肾超急性排斥反应，但绝大多数可经过交叉配型试验得以避免。DSA阳性患者若表现为高致敏性，肾移植术后也易发生急性排斥反应，因此在临床治疗方面可采用肾移植术前处理方法进行干预，以达到降低移植肾排斥反应的目的[9,17]。等待肾移植进行透析的患者中，高致敏性发生率为10%～30%[5,16]。

MMF可分解肾移植患者体内的PRA。Shah等[16]对40例高致敏性患者（PRA > 30%）采用口服MMF治疗，经治疗PRA水平明显下降，其中18例患者接受了移植，术后24个月Ser为（88.33 ± 22.08）μmol/L，5例患者（28%，5/18）术后出现急性排斥反应，术后1年患者和移植存活率分别为94%和88%。由此可见，肾移植术前患者除行CDC达到避开DSA外，仍可采用药物治疗的方法去除抗HLA抗体，达到符合移植的标准。

在本研究中，对肾移植术后2周左右的224例患者进行PRA检测，发现PRA阳性患者29例，10年后的肾功能检查发现，18例患者肾功能丧失或下降，11例患者肾功能正常。虽然本研究没有对29例肾移植术后PRA阳性患者进行术前PRA检测，但肾移植术前所进行的CDC已证明29例患者体内无抗DSA。而本研究表明，在肾移植术后2周左右PRA阳性的195例患者中，于2007年再次检测PRA时，42例患者出现了PRA阳性，可见在移植术后不同阶段均会产生PRA。此42例PRA阳性患者，于近期检测肾功能均表现出不同程度的肾功能下降或丧失。另153例PRA阴性患者，2014年4月复查肾功能正常148例，肾功能下降或丧失患者仅5例。由此可见，PRA在肾移植术后不同阶段均可产生，且对移植肾的长期存活率有明显的影响。

总之，本研究表明PRA的产生对肾移植长期和远期预后均有不同程度的影响，因此对肾移植术后患者应定期检测PRA，及时发现异常，及时处理，使移植肾得以长期存活。

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