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Serum Cholesterol Levels in African Americans After Renal Transplantation Under FK 506 Immunosuppression

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HYPERCHOLESTEROLEMIA, an important risk factor for the development of serious premature cardiovascular disease, has been observed in renal transplant patients.[1,2] Its pathogenesis has been thought to be related to corticosteroid therapy.[2] However, it appears that FK 506, a new and highly potent immunosuppressant, on the other hand can inhibit the development of transplant arteriosclerosis.[3] Furthermore, in a recent study by one of us (R.S.) comparing FK 506 with cyclosporine in renal transplant patients,[4] a significantly higher serum cholesterol level was seen in patients receiving cyclosporine compared with patients receiving FK 506. To study this problem further, we looked at serum cholesterol levels in 37 adult African Americans who received renal transplant allografts under FK 506 at the University of Pittsburgh Medical Center between October 26, 1989 and July 24, 1992.

PATIENTS AND METHODS

Thirty-seven adult African Americans who received renal transplant allografts only and were immunosuppressed primarily with FK 506 were retrospectively analysed.

All patients received FK 506 and prednisone. In 18 patients, however, azathioprine was also added. There were 23 males and 14 females. All patients had a minimum postoperative follow-up of 4 weeks. Serum cholesterol levels were obtained during the preoperative evaluation and monitored postoperaively. Patients were classified as diabetic or nondiabetic as defined by Scantlebury et al.[5] Statistical analysis for observed differences was done using the Mann-Whitney U test. Differences of $P < .05$ were considered significant.

RESULTS

Fifty-seven percent (21/37) of patients were under the age of 40 years. Twenty-two percent (8/37) were undergoing retransplantation. Thirty-eight percent (14/37) were insulin-dependent diabetics while 62% (23/37) were nondiabetics.

As a group, over the 3-month period, the serum cholesterol level rose from a median of 174.0 mg/dL (range 88.0 to 278.0 mg/dL) in the first week to 194.0 mg/dL (range 102 to 325.0 mg/dL) in the first month and then peaked at 211.0 mg/dL (range 134.0 to 315.0 mg/dL) in the second month ($P = .824$). However, by the end of the third month, it had dropped to to 198.0 mg/dL (range 128.0 to 356.0 mg/dL). When the group was subdivided into diabetics and nondiabetics, this trend was seen in the diabetics but not in the nondiabetics. In the nondiabetics, the level rose from a median of 163.0 mg/dL (range 88.0 to 278.0 mg/dL) in the first week to 179.0 mg/dL (range 102.0 to 291.0 mg/dL) in the first month and then plateaued at 190.5 mg/dL (range 134.0 to 279.0 mg/dL) in the second ($P = .552$) and 191.0 mg/dL (range 128.0 to 356.0 mg/dL) in the third month ($P = .178$).

Although there was some difference in the cholesterol levels over time, they were not statistically different.

DISCUSSION

While no discernable pattern was seen in serum cholesterol levels after transplantation, it is important to note that they were basically normal, at least in the early posttransplant period. There is abundant epidemiologic and clinical data that implicate hypercholesterolemia as an important risk factor in the occurence of myocardial infarction at a young age.[6,7] Therefore, the occurence of hypercholesterolemia in transplant patients can pose a long-term problem. Cardiovascular complications account for about 40% of deaths that occur within 3 months of transplantation.[8] Reports that FK 506 can inhibit posttransplant arteriosclerosis[3] and be associated with a signficant lowering of serum cholesterol when compared with cyclosporine,[4] may have important long-term implications, if these findings translate into lowered cardiovascular risks.

REFERENCES

1. Ponticelli C, Barbi G, Cantaluppi A, et al: Kidney Int 13:S72, 1978

2. Chan MK, Varghese Z, Moorhead JF: Kidney Int 19:625, 1981

3. Wu GD, Cramer DV, Chapman FA, et al: Transplant Proc 23:3272, 1991

4. Shapiro R, Jordan M, Scantlebury V, et al: Transplant Proc 23:3065, 1991

5. Scantlebury V, Shapiro R, Fung J, et al: Transplant Proc 23:3169, 1991

6. Shekelle RB, Shryock AM, Paul O, et al: N Engl J Med 304:65, 1981

7. Seidel D, Cremer P, Nagel D: Atherosclerosis Rev 23:2431, 991

8. Wing AJ, Brunner FP, Brynger H, et al: Proc EDTA 15:4, 1978

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