

# Changes in Quality of Life Following Conversion From CyA to FK 506 in Orthotopic Liver Transplant Patients

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**A**DVANCES in immunosuppressive therapy have allowed for improvements in both graft and patient survival. Nevertheless, rejection and adverse effects of immunosuppression continue to limit the effectiveness of organ transplantation.<sup>1</sup> FK 506 is a novel, potent immunosuppressive agent first used in clinical trials in early 1989.<sup>2</sup> The initial use of FK 506 was in liver transplant patients, with complications related to cyclosporine (CyA) use. Refractory rejection and other complications of CyA use, such as nephrotoxicity, severe hypertension, and steroid toxicity were indications for conversion to FK 506.<sup>3</sup> While previous studies have demonstrated the effectiveness of FK 506, conversion in reversing some of the complications of CyA use, little is known about the effect of FK 506 conversion on the quality of life of these patients.

The aim of this study was to assess the quality of life of liver transplant patients before and after FK 506 conversion.

## MATERIALS AND METHODS

This was a retrospective study. The first 126 adult liver transplant patients who switched from CyA to FK 506 were included. The conversion occurred between the period March 1989 and November 1990.

The mean age of our study population was 44.4 years (ages 16 to 77). There were 70 females (55.5%) and 56 males (45.5%). Patients were on CyA for an average of 28.3 months before the switch. Data were collected an average of 15.5 months after conversion to assess FK 506's effect on quality of life issues. The reasons for conversion are shown in Table 1.

The subjects were interviewed by telephone in June and July of 1991. A standardized questionnaire was used. Open-ended questions were asked regarding side effects, including the worst side effects experienced while taking CyA compared to those experienced with FK 506. The following question areas were addressed:

1. Quality of life issues, including general health, work life, social activities, family life, and sex life.
2. Specific side effects and reporting if they have improved, remained unchanged, or became worse.

**Table 1. Reasons for Switch From CyA to FK 506**

Reason	No. of Patients	Percent of Patients
1. Ongoing rejection	82	65.0
2. Renal failure	30	23.8
3. CyA and/or steroid toxicity	10	7.9
4. Hypertension	4	3.2

The majority of patients were switched from CyA to FK 506 because of rejection. The remaining patients were switched due to renal failure, CyA and/or steroid toxicity, or hypertension.

Interviewers were registered nurses specializing in clinical transplant research. These nurses were not involved in direct patient care and, therefore, blinded to any CyA or FK 506 side effects experienced by the patients.

## RESULTS

The patient's own assessment of his/her general health was the greatest determinant of our subject's quality of life (Fig 1). Sixty-three percent of our patients felt that FK 506 had improved their lives. Twenty-nine percent stated that they were unaffected by this switch in immunosuppression, and life became worse for 9% of our population.

The effect of FK 506 on the ability to work and social activities showed comparable results. An improved ability to work occurred in 43% of our subjects, whereas 48% were unchanged in work ability. Very few (9%) had decreased their working ability. Forty-eight percent of our subjects increased social activities, while 46% had no change. Only 6% reported a decline in their social activities. The biggest praise for FK 506 was a boost of energy after being switched. The biggest complaint was about tremors that interfered with accomplishing work.

Family life and relationships, and sexual life shared similar results. Family life remained unchanged in 75% of our population. Twenty-one percent had improved their family life and 3% showed deterioration. Seventy-one percent of our subjects had unchanged sexual relationships, followed by 20% reporting an improved sexual life. Four percent of the study group had a decline in their sexual life, while 4% of the participants in the study preferred not to reply to this question.

Patients who were interviewed reported numerous CyA/steroid-related side effects prior to FK 506 conversion. By far, the majority of patients (101) noted side effects associated with CyA use, which were endocrine-like in origin. The main endocrine side effect was hirsutism (Table 2). Seventy-seven subjects reported neurological disturbances, primarily tremors (Table 3). GI side effects were reported by 19 patients. The most frequent complaint was of nausea and abdominal cramps (Table 4).

The response to FK 506 conversion was uniform. Seventy-six percent of endocrine side effects, experienced on

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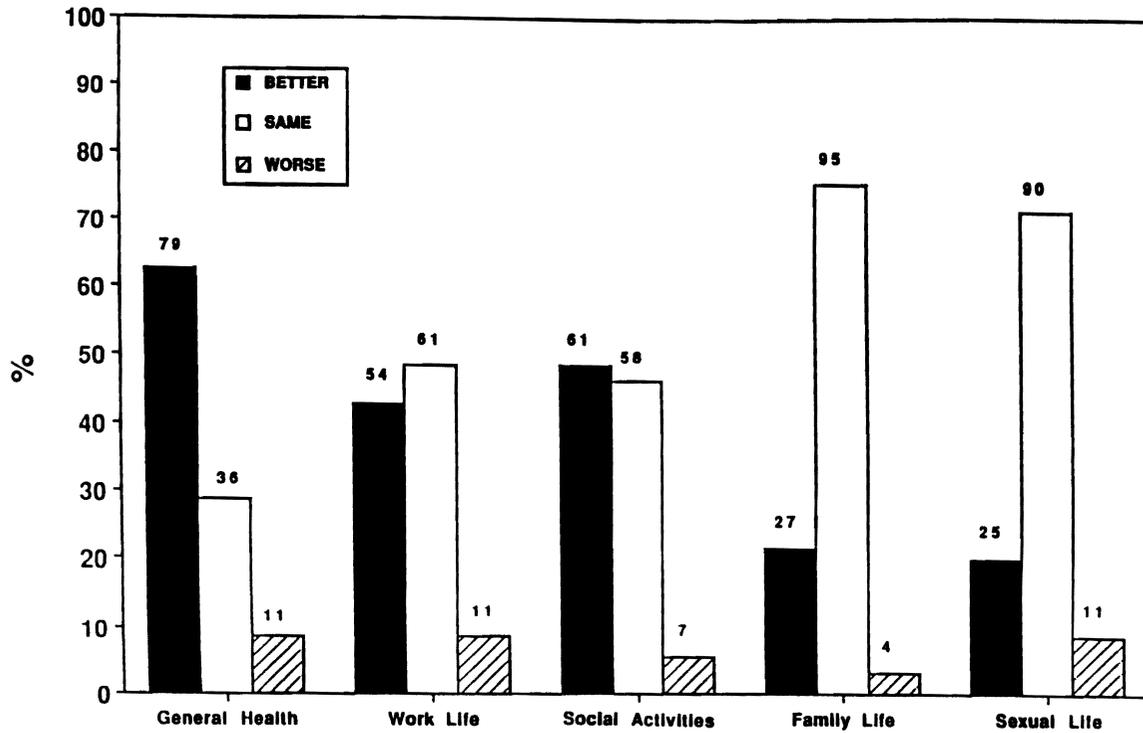


Fig 1. Results after being switched from CyA to FK 506.

Table 2. Endocrine Side Effects

Symptom	No. of Patients on CyA (%)	No. of Patients Improved on FK 506 (%)	No. of Patients Unchanged on FK 506 (%)	No. of Patients Worse on FK 506 (%)
Hair growth	48 (38)	45 (93.8)	3 (6.2)	0
Hypertension	25 (20)	16 (64)	8 (32)	1 (4)
Weight gain	15 (11.9)	12 (80)	3 (20)	0
Diabetes	13 (10.3)	4 (30.8)	6 (46.2)	3 (23.1)

Table 3. Neurological Side Effects

Symptom	No. of Patients on CyA (%)	No. of Patients Improved on FK 506 (%)	No. of Patients Unchanged on FK 506 (%)	No. of Patients Worse on FK 506 (%)
Tremors	21 (16.6)	13 (61.9)	7 (33.3)	1 (4.8)
Headache	11 (8.7)	8 (72.7)	2 (18.2)	1 (9.1)
Mood swings	8 (6.3)	7 (87.5)	1 (12.5)	0
Depression	7 (5.5)	6 (85.7)	1 (14.3)	0
Insomnia	6 (4.8)	4 (66.6)	2 (33.3)	0
Poor concentration	5 (4)	5 (100)	0	0
Numbness/tingling sensation	5 (4)	4 (80)	1 (20)	0
Confusion	5 (4)	5 (100)	0	0
Impaired memory	3 (2.4)	2 (66.6)	1 (33.3)	0
Vision change	3 (2.4)	3 (100)	0	0
Nervousness	3 (2.4)	2 (66.6)	1 (33.3)	0

Table 4. Gastrointestinal Side Effects

Symptom	No. of Patients on CyA (%)	No. of Patients Improved on FK 506 (%)	No. of Patients Unchanged on FK 506 (%)	No. of Patients Worse on FK 506 (%)
Nausea/abdominal cramps	12 (9.5)	6 (50)	4 (33.3)	2 (16.7)
Anorexia	4 (3.2)	3 (75)	1 (25)	0
Diarrhea	3 (2.4)	3 (100)	0	0

CyA, improved when switched to FK 506. This was also noted in 77% of neurological side effects and 63% of the gastrointestinal side effects. In contrast, a small percentage of patients complained of worsening side effects after FK 506 conversion; 13.5% complained of increased headaches. These were generally migraine-like in nature. Fine tremors, especially of the hands, were problematic with both CyA (16.6%) and FK 506 (12.7%).

#### DISCUSSION

This study suggests that the quality of life is improved in liver transplant patients after being converted from CyA to FK 506. This was often identified by an improvement in general health.

While many of the CyA side effects continued to plague the patients throughout CyA therapy, most of the FK 506

side effects were experienced during the initial switch only. These occurred mainly during IV infusion. After being switched to oral FK 506, and after dose adjustments were made, many of the side effects resolved. Currently, we try to avoid IV dosing whenever patients can tolerate oral FK 506.

It appears that FK 506 has improved quality of life, but a placebo effect cannot be ruled out. However, in general, it is our opinion that FK 506 has helped.

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