To Evaluate the Efficacy of Hydroxychloroquine in Systemic Lupus Erythematosus: Impact on Disease Activity and Immunological Biomarkers.

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INTRODUCTION

Systemic Lupus Erythematous (SLE) is an autoimmune condition that causes persistent inflammation, immunological dysregulation, and multiorgan involvement.

Hydroxychloroquine (HCQ), a key component in systemic Lupus Erythematous therapy, regulates immunological responses and decreases disease activity. Despite its extensive usage, the effects on immunological biomarkers and disease progression over time in patients with new diagnoses are unknown.

OBJECTIVE

- ✓ The primary goal was to determine the influence of hydroxy chloroquine medication on disease activity in newly diagnosed people with SLE across a two month period.
- ✓ The secondary goal was to assess changes in immunological indicators before and after commencing Hydroxychloroquine (HCQ) medication.

MATERIAL AND METHODS

- ✓ In this prospective cohort research, 40 recently diagnosed SLE patients were given Hydroxy chloroquine medication (400 milligrams per day).
- ✓ Disease activity and immunological biomarkers were measured at three time points: baseline (before Hydroxy chloroquine started), (1 and 2 months after the beginning of HCQ therapy). Serum samples of 40 aged-matched healthy donors were used as controls for immunological biomarker comparison.
- ✓ Clinical data were gathered at baseline, one-month, and two-month follow-up appointments to analyze immunological biomarkers.

RESULTS

- The SLEDAI Score, a measure of lupus disease progression, fell dramatically from 14.5 ± 3.2 at baseline to 6.7 ± 2.0 after two months ($p < 0.01$), indicating better disease management.
- Anti-dsDNA levels, a disease activity measure, decreased dramatically from 120 ± 30 IU/mL at baselines to 80 ± 20 IU/mL after two months ($p < 0.01$), while staying steady at 15 ± 5 IU/mL in healthy controls.
- C3 and C4 levels, which are normally low in active lupus, increased dramatically in SLE patients, with C3 increasing from 70 ± 10 m per deciliter to 100 ± 20 mg/dL in just over two months (statistically significant at <0.01).

Variable	Time Point	Mean ± SD (SLE Patients)	Mean ± SD (Healthy Controls)	p-value
SLEDAI Score	Baseline	14.5 ± 3.2	-	-
	1 Month	10.2 ± 2.5	-	< 0.01
	2 Months	6.7 ± 2.0	-	< 0.01
Anti-dsDNA (IU/mL)	Baseline	120 ± 30	15 ± 5	< 0.01
	1 Month	100 ± 25	15 ± 5	< 0.05
	2 Months	80 ± 20	15 ± 5	< 0.01
C3 Complement (mg/dL)	Baseline	70 ± 10	120 ± 15	< 0.01
	1 Month	80 ± 15	120 ± 15	< 0.05
	2 Months	100 ± 20	120 ± 15	< 0.01
C4 Complement (mg/dL)	Baseline	20 ± 5	40 ± 5	< 0.01
	1 Month	25 ± 6	40 ± 5	< 0.05
	2 Months	30 ± 7	40 ± 5	< 0.01
IL-6 (pg/mL)	Baseline	25 ± 10	5 ± 2	< 0.01
	1 Month	20 ± 8	5 ± 2	< 0.05
	2 Months	15 ± 6	5 ± 2	< 0.01

CONCLUSION

The findings show a considerable reduction in SLE disease activity over two months, as shown by decreased SLEDAI scores, lower anti-dsDNA levels, and greater complement levels. IL-6 levels also dropped, indicating a reduction in inflammation. Overall, our data point to good disease management and immunological normalization in systemic lupous erythematous patients.