

Assessment of saliva as an alternative matrix for therapeutic drug monitoring of hydroxychloroquine in systemic lupus erythematosus Kupa LVK¹, Duarte NJC^{2,3}, Seraphim JC¹, Duarte AJS^{2,3}, Romano P^{2,3}, Martins VAO¹, Pedrosa TN¹, Pasoto SG¹, Aikawa NE¹, Carvalho VM⁴, Silva CA¹, Bonfa E¹. ¹Rheumatology Division, ²Central Laboratory Division, ³Laboratório de Investigação Médica (LIM 03), Hospital das Clínicas HCFMUSP, Faculdade de Medicina, Universidade de São Paulo, ⁴Grupo Fleury, São Paulo, SP, Brazil

Background

Previous studies have shown the relationship between hydroxychloroquine (HCQ) blood levels and flare risk in systemic lupus erythematosus (SLE). Saliva is an emerging alternative matrix that overcome the limitations of blood sample in drug monitoring. However, this matrix has never been evaluated for HCQ. Thus, we assessed saliva as an alternative to blood sample for HCQ monitoring in SLE patients by correlation study and linear regression to predict blood levels.

Methods

Thirty-three consecutive patients were analyzed. The median age was 38 years (19-60), 88% were females. Patients were allocated in two groups with one-week interval: group 1(n=17) which validated a regression equation and group 2(n=16), added to the first group to predict blood levels based on saliva levels.

Results

The cumulative dose varied from 100-4500g. The median of HCQ blood (763.9 vs. 1214.3 ng/mL, p=0.219) and saliva (51 vs. 61.5 ng/mL, p=0.192) levels were similar in groups 1 and 2. A positive and strong Pearson correlation was registered between saliva and blood levels (r=0.85, p<0.001). The linear regression had a r² coefficient of 0.722 and predict with 100% of success blood levels ranged from 200 ng/mL to 613 ng/mL (n=4) and with 90% of success blood levels ranged from 614 ng/mL to >2000 ng/mL (n=20). No difference was observed between predicted versus current HCQ blood concentrations (p=0.681).

Conclusions

This was the first report showing a strong correlation between HCQ saliva and blood concentrations. This finding opens a window of opportunity to use this matrix to monitor HCQ levels in SLE patients.

Key words: Hydroxychloroquine; Systemic Lupus Erythematosus; Saliva levels; Blood levels.