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Case Report

Hydroxychloroquine-induced acute psychosis in a systemic lupus erythematosus female

Hsu WY, Chiu NY, Huang SS. Hydroxychloroquine-induced acute psychosis in a systemic lupus erythematosus female.

Background: Systemic lupus erythematosus (SLE) is a chronic multisystem autoimmune disease. Hydroxychloroquine, a kind of anti-malarial, has become an important treatment for SLE in recent years.
Method: We want to report a 49 year-old female SLE patient, who had psychosis episode with hydroxychloroquine treatment.
Result: There's still risk of psychosis with hydroxychloroquine treatment from the possible mechanism.
Conclusion: Awareness of chloroquine-induced psychosis is very important, and psychiatric intervention is needed as soon as possible after this occurs.

WenYu Hsu[1], NanYing Chiu[1], SiSheng Huang[2,3]

[1]Department of Psychiatry, Lu-Tung Branch of Changhua Christian Hospital, Changhua, Taiwan; [2]Department of Psychiatry, Yun-Lin Branch of Changhua Christian Hospital, Yun-Lin, Taiwan; and [3]Center of General Education, Central Taiwan University of Science and Technology, Taichung, Taiwan

Keywords: delusions; dopamine; psychosis; psychopharmacology

Dr NanYing Chiu,
Department of Psychiatry,
Lu-Tung Branch of Changhua Christian Hospital,
888 Lu-Tung Road,
Changhua, Taiwan.
Tel: 886 4 7789595x1133;
Fax: 886 4 7769780;
E-mail: 400850@cch.org.tw

Background

Systemic lupus erythematosus (SLE) is a chronic multisystem autoimmune disease. Individuals with SLE can develop a number of psychiatric conditions, including psychosis. It is often unclear in SLE patients with psychiatric illness. Primary illness, SLE brain disease or treatments for SLE might result in psychiatry illness (1). However, psychosis has long been included in the diagnostic criteria for SLE (2). Hydroxychloroquine, a kind of anti-malarial, has become an important treatment for SLE in recent years (3). There are few reports about hydroxychloroquine-induced psychosis. The following is the report of a female SLE patient who developed psychosis while under treatment with hydroxychloroquine.

Case report

Mrs B, a 49-year-old married female, had systemic lupus erythematosus (SLE) for 12 years and had been followed up in the rheumatology outpatient service regularly. She had no psychiatric history and also had no family history of psychiatric problems. Her SLE had been under good control with hydroxychloroquine 100 mg daily during the past 8 years. Two months prior to admission, she began having feelings of stress and sleeping poorly. Then, she revealed strange behaviour and speech, religious thoughts and grandiose ideas. Two weeks prior to admission, she presented with commanding auditory hallucinations, irritable mood and persecutory delusions, and refused medication for SLE. She was sent to our emergency department for help and was admitted to our acute ward for further assessment and treatment. There was no abnormal finding in the blood routine and related rheumatology laboratory data. Brain computed tomography (CT) revealed normal findings. We prescribed risperidone 2 mg daily and her psychotic symptoms and signs decreased. No auditory hallucinations, religious thoughts, grandiose ideas or persecutory delusions were noted after 7 days of treatment. She could not explain what had happened the most recent 2 months.

Discussion

It is difficult to differentiate aetiologies of psychosis in SLE patients. There are many factors related with psychiatry manifestations, such as acquired

brain dysfunction, organ system dysfunction, adverse effects of treatment, learning history, psychosocial stressors and current coping strategies (4). Acute psychosis related to SLE was observed in 11.3% of a cohort in a recent study (5). About one-third of the patients with psychosis due to SLE had psychosis at disease onset and the remainder had psychosis on follow-up with a mean time of 14 months between SLE diagnosis and psychosis onset (5). In our case, the patient was diagnosed with acute psychosis 12 years after the diagnosis of SLE. Psychosis due to SLE was correlated with disease activity (e.g. antiphospholipid antibodies) as well as other neuropsychiatric manifestations of the disease (5). However, we did not find a change in disease activity in our patient: her antiphospholipid antibodies activity showed no change in our survey and there was no specific finding in her brain CT survey. SLE-related psychosis was ruled out. We also did a physical examination and laboratory survey to rule out psychosis induced by other organic problems. Hydroxychloroquine-induced psychosis was suspected. Naranjo probability scale was performed in this case and the total score was five points. Probable level of adverse event was noted. To the best of our knowledge, this is the first report on hydroxychloroquine-induced psychosis in an SLE female patient; however, there are several reports on chloroquine-induced psychosis in antimalaria therapy.

Chloroquine and its derivatives have been drugs of choice in the prophylaxis and treatment of malaria for over 50 years. These drugs are also frequently used in the treatment of various rheumatologic disorders. The exact role of chloroquine in the development of psychosis is not clear. However, dopamine and anticholinergic effects were suspected to have key roles in the process. In an animal study, chloroquine, in low doses, produced excitatory effects. Dopaminergic mechanisms may have been involved (6). Chloroquine's effects of increasing the turnover of dopamine-transporter protein and decreasing the downregulation of post-synaptic dopamine receptors would increase dopaminergic activity (7–9). The anticholinergic effects of chloroquine were noted *in vitro* by data showing a blockade of the muscarinic cholinergic receptors (10). Given the role of cortical cholinergic inputs in gating cortical information processing, even subtle changes in the regulation of this cortex-wide input system that represent a necessary transsynaptic consequence of sensitised mesolimbic dopaminergic transmission profoundly contribute to the neuronal mediation of psychotic symptoms (11).

However, chloroquine-induced psychosis is rare in SLE patients. Retinal toxicity is the most frequent adverse event in SLE patients receiving antimalarial medication, such as chloroquine and hydroxychloroquine in the recent review (12). Regular retinal examination is important in SLE patients receiving hydroxychloroquine treatment. But, there is still risk of psychosis with chloroquine treatment from the above-possible mechanism.

Conclusion

Regular medication compliance is very important in treating SLE patients. Psychosis resulting in poor drug compliance might deteriorate the severity of the autoimmune system disease. Awareness of chloroquine-induced psychosis is very important and psychiatric intervention is needed as soon as possible after this occurs.

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