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Severe mental change in hemodialysis patients with end-stage renal disease without any abnormality in brain imaging

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Objectives: The altered level of consciousness in hemodialysis patients is attributed to several causes, including cerebrovascular diseases, infectious diseases, hepatic encephalopathy, uncontrolled hypertension, hypoglycemia, and thiamin deficiency.
However, in the absence of any cause, drug-induced mental changes should be considered because hemodialysis patients have decreased drug excretion compared with the general population, increasing their likelihood of experiencing the drug-related side effects. we encountered multiple cases of the altered level of consciousness in hemodialysis patients. We investigated the drug history of patients with uncertain causes of conscious change without any abnormality in brain imaging.

Methods: We examined the medication history of hemodialysis patients who visited the Chungnam National University Hospital because of the altered level of consciousness, between January 1, 2013 and December 31, 2018. We excluded patients with known causes like cerebrovascular diseases, infectious diseases, hepatic encephalopathy, uncontrolled hypertension, hypoglycemia, thiamin deficiency, and an unknown medication history. We excluded patients with any abnormality in brain imaging.

Results: During the study period, 49 hemodialysis patients visited our hospital because of the altered level of consciousness. We excluded 15 patients with definite causes. The remaining 34 patients had no clear causes; of these, we excluded 9 because of unconfirmed medication history. Finally, we analyzed the medication history of 25 patients. Most drugs were gabapentin and antihistamine agents—both taken by 5 patients. Antibiotics were taken by 5 patients (cefepime,3; ceftriaxone,1; ciprofloxacin,1). 5 patients used NSAIDs, and 4 patients took tramadol. Of all, 13 patients recovered consciousness within a day after discontinuing drugs, 5 patients received regular hemodialysis and took >3 days to recover consciousness, and 7 patients could not recover from the altered level of consciousness.

Conclusions: When using drugs mentioned above on hemodialysis patients, the likelihood of mental change should be considered. Hence, we recommend frequent check-ups upon administering drugs and discontinuing unnecessary drugs.