

PSYCHOGERIATRIC NOTE

Delirium in a patient with Alzheimer's dementia following COVID-19 vaccination

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Delirium is an acute confusional state which occurs in the course of an illness, especially in older adults.¹ It is a multifactorial geriatric syndrome that develops from the interaction between predisposing and precipitating factors.¹

In the available literature, a 75-year-old woman showing post-influenza vaccine delirium and a 35-year-old man with confusion following yellow fever vaccine were reported.^{2,3} Potential adverse effects from COVID-19 vaccines are systematically monitored following their authorisation for use. Although they are accepted as safe, yet there is inadequate evidence of severe side effects. Delirium following BNT162b2 (Comirnaty, Pfizer-BioNTech) and ChAdOx1 nCoV-19 (Vaxzevria, AstraZeneca) COVID-19 vaccines have been reported.^{4,5} Our aim in this case report is to share our experience of a delirium episode following another COVID-19 vaccine (CoronaVac) in an older patient with dementia.

'Ms. D', an 88-year-old frail woman living with her son, admitted to a geriatric telemedicine consultation because of acute development of confusion, hallucinations, agitation, and sleep disturbance. She had been isolated by her son for several months. Her history was remarkable for a CDR-2 Alzheimer's dementia, rare previous delirium episodes, and osteoporosis was noted. Her son insisted that she was in stable mental and physical conditions since the start of isolation at home. The medication list included rivastigmine patch 10 cm² daily and alendronic acid/cholecalciferol (70 mg/5600 IU) weekly. Recent anorexia, fever, urinary complaints or signs, upper or lower respiratory tract symptoms, alcohol intake, substance abuse, or smoking were not recorded. No medication was started recently for the patient.

The only remarkable finding was the first dose vaccination with inactivated vaccine against COVID-19 (CoronaVac) the day before the initiation of her symptoms. Her vital signs measured by her son were as follows: blood pressure 138/68 mmHg, heart rate 80/min, axillar body temperature 36°C, and

respiration 16/min. She was hyperalert and not oriented to time, person, or place. Her son noted that she showed fluctuating disturbance in awareness and attention. She was also talking about a man walking around the house (visual hallucination).

The clinical picture was consistent with hyperactive delirium based on the criteria of the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5). Laboratory results obtained by the homecare staff on the same day revealed a mild normocytic anaemia in complete blood count, and leukocyturia (2+) in urinalysis. Other results were within normal limits: C-reactive protein, 2.9 mg/L; serum ferritin, 127 µg/L; serum glucose, 86 mg/dL; serum urea, 17 mg/dL; creatinine level, 0.92 mg/dL; aspartate aminotransferase concentration, 17 U/L; alanine aminotransferase concentration, 21 U/L; thyroid-stimulating hormone, 1.92 mU/L; and vitamin B₁₂, 480 ng/L. Since the patient did not have fever and signs and symptoms of lower urinary tract infection, leukocyturia was accepted as asymptomatic type.

The patient was prescribed haloperidol (1 mg/day) for hyperactive delirium, trazodone (50 mg/day) for sleep disturbance. On the second day of this treatment, fluctuations in consciousness and hallucinations significantly reduced, requiring no haloperidol dose on the third day. The second dose of the vaccine was not administered. No further episodes of delirium were encountered in the patient over 2 weeks of follow-up.

CoronaVac is an inactivated COVID-19 vaccine developed by the Chinese company Sinovac Life Sciences. The vaccine has good efficacy and safety profile in older people. Pain at the injection site, fever, fatigue, and diarrhoea are the most reported adverse reactions, which are accepted as mild and temporary.⁶

Precipitation of delirium by the COVID-19 vaccine was assessed by the Naranjo criteria.⁷ The adverse drug reaction score was 6, indicating a probable association between the COVID-19 vaccine and delirium.

Concerns related to adverse effects of vaccines on the neurological system are common and has public impact. However, taking the example of flu vaccine, there is almost no clear evidence to support such concerns in the adult population. Nonetheless, following vaccine injection, acute confusion may occur due to the effects of systemic inflammation on the brain, also called aseptic encephalopathy.^{2,3} In addition, advanced age, a history of delirium, and functional impairment might contribute to the vulnerability of our patient to delirium.¹

We here present the first report, to our knowledge, of delirium in a patient following CoronaVac, likely precipitated by the preceding dementia. The clinical findings arose as early as 24 h and were easily manageable with usual measures within 48–72 h. Such an acute onset and easy disappearance of delirium symptoms suggest that frequently encountered delirium aetiology in such patients did not exist thanks to positive care given by the son.

In conclusion, after getting the COVID-19 vaccine, older adults with pre-existing cognitive impairment, including dementia, may be more vulnerable to delirium. Post-vaccination observation of changes in mental status and vital signs may be required for early identification of delirium in older adults, especially in those with a history of cognitive impairment.

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None.

DISCLOSURE

The authors have no potential conflicts of interest to disclose.

INFORMED CONSENT

Written informed consent was obtained from the patient's son for publication of this case report. A copy of the written consent is available for review from the Editor-in-Chief of this journal.

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