The Indian Journal of Pediatrics (December 2019) 86(12):1157
https://doi.org/10.1007/s12098-019-03069-1

SCIENTIFIC LETTER

A Novel Adverse Event of Nusinersen Treatment: Thrombocytosis

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Received: 27 July 2019 / Accepted: 21 August 2019 / Published online: 13 September 2019

To the Editor: Nusinersen (SPINRAZA-Biogen; Cambridge, MA, USA), is a new generation intrathecal treatment method for Spinal muscular atrophy (SMA) Type 1. This is an antisense oligonucleotide which produces effect by increasing SMN protein production [1]. The effects and adverse effects of the drug have not been revealed completely [2].

A five month male patient, who was diagnosed with SMA Type 1 was admitted to hospital for the 2nd dose of Nusinersen treatment. The first dose of the treatment had been given 2 wk before. Physical examination and vital signs were normal. A complete blood count analysis, performed before the intrathecal treatment revealed Hb: 13 g/dl, WBC: $12.7 \times 10^3/\mu L$, thrombocytes: $1283 \times 10^3/\mu L$, MCV: 79.2 fL, RDW: %12. The patient did not have a known history of thrombocytosis and there were no dehydration signs, bacterial or viral infection symptoms. The thrombocyte value 6 h after the first dose of Nusinersen, that was given two weeks earlier, was $413 \times 10^3/\mu L$. The examinations showed a normal range of serum iron, iron-binding capacity, and serum ferritin values. Peripheral blood smear did not show hypochromia, microcytosis or hemolysis signs. Thrombocytosis continued for 3 mo. Antiaggregant dose aspirin treatment was applied throughout these 3 mo and gradually interrupted according to the thrombocyte values.

Many clinical studies such as ENDEAR (CS3B), CS3A, CHERISH and NURTURE have been conducted in order to determine the adverse effects of the Nusinersen [3]. Fever, headache, backache, throwing up, proteinuria, thrombocytopenia, lower respiratory tract infection, atelectasis and urinary tract infection are a few of its frequent adverse effects. Differently, CS3A study reported hyponatremia in 3 cases. In CS3B study group, 6 (11%) of 56 patients were found to have thrombocytopenia. None of the patients showed thrombocytopenia value below 50.000 and neither of them required a support [4].

Secondary thrombosis can be seen due to drugs such as beta-lactam antibiotics, G-CSF, myconazole, vinco alkaloids, iron treatment, enoxaparin, antipsychotic drugs, adrenaline, glucocorticoid, retinoic acid and quinolons [5]. To the best of our knowledge, our patient is the first SMA patient to develop thrombocytosis with Nusinersen treatment.

In conclusion, activity and adverse effects of Nusinersen are still a puzzle. Performing a simple complete blood count analysis before and after Nusinersen application is important to prevent thrombocytosis adverse event.

Compliance with Ethical Standards

Conflict of Interest None.

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