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EVALUATION OF EFFECTIVENESS AND SAFETY OF ELADOCAGENE EXUPARVOVEC IN THE TREATMENT OF AROMATIC L-AMINO ACID DECARBOXYLASE (AADC) DEFICIENCY IN UNIVERSITY HOSPITAL: A CASE REPORT.

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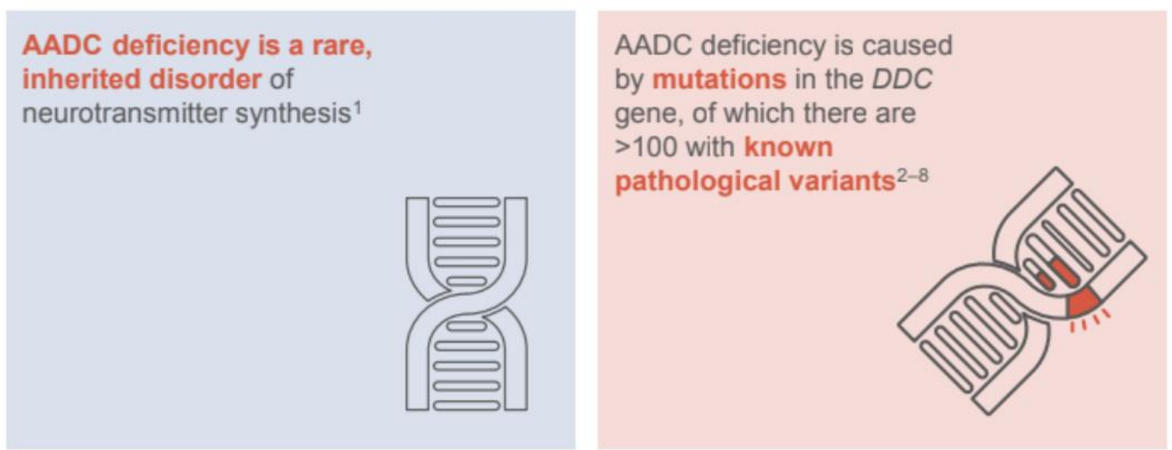
Background and importance

Aromatic L-amino acid decarboxylase deficiency (AADC) is a rare genetic disorder that causes a reduction in neurotransmitter levels, leading to severe motor dysfunction. This case report details the improvement in the clinical condition of the only patient in Italy treated with Eladocagene Exuparvovec, 12 months after intraputaminal infusion



Aim and objectives

The objective is to highlight new therapeutic effects, given the paucity of data in the literature with only 26 interventions have been conducted in clinical trials worldwide. This paper presents the case of a three-year-old patient with a confirmed diagnosis of AADC. The patient exhibited the following neurological indications and symptoms upon initial presentation: bradykinesia, oculo palpebral seizures, dystonia, disturbances in sleep patterns, fluctuations in body temperature, hyperhidrosis, hypokinesia, hypotonia, ptosis of the eyelids, and developmental delays. Additionally, he exhibited non-neurological indications, including short stature, nasal congestion, feeding difficulties, recurrent respiratory infections, and poor weight gain.

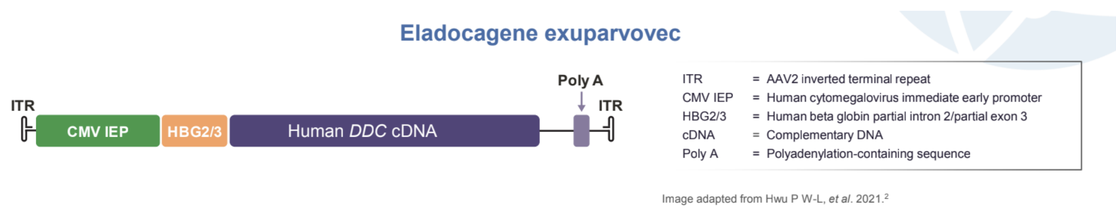


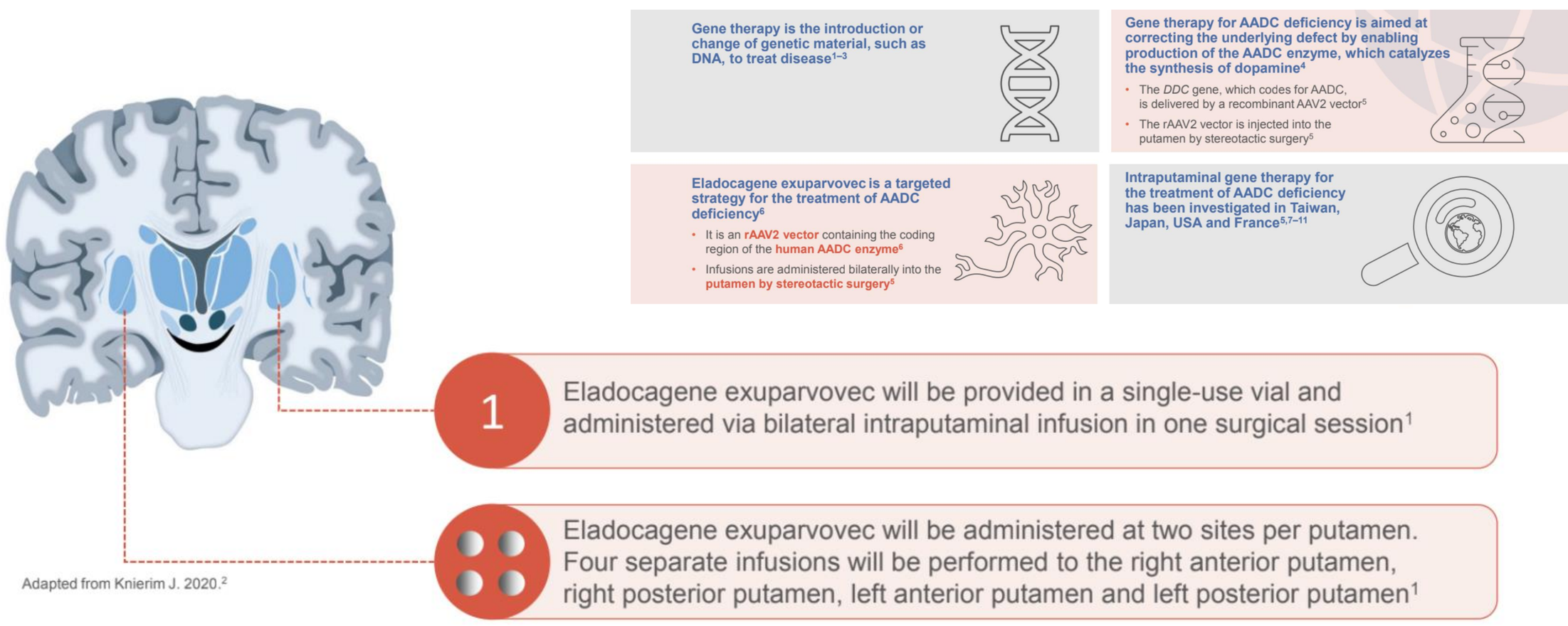
Image adapted from Hwu P W-L, *et al*. 2021.[2]

Material and methods

Eladocagene Exuparvovec has been administered via bilateral infusions at two sites per putamen, comprising four separate infusions(1), during a single surgical session conducted in May 2023. The patient then underwent a one-year follow-up period following the infusion. Surgical interventions in patients with AADC deficiency require collaboration between several specialities within the multidisciplinary team. The treatment was approved by Italian Medicines Agency (authorization no. 120/2023).

Results

Significant enhancements in motor and cognitive abilities were observed within a 12-month period following the administration of the gene therapy. The patient exhibited a Peabody Developmental Motor Scale, version 2 (PDMS-2) score of 8 after 12 months, representing a four-point improvement from the baseline measurement. Increased de novo dopamine production was demonstrated by PET and neurotransmitter analyses. The patient's symptoms as mood, sweating, temperature and oculogyric crises and quality of life improved.



Conclusion and relevance

No brain lesions was detected. No adverse events in treated patient was recorded, although mild and moderate dyskinesia was reported in clinical trials and disappeared within a few months.
Therefore, treatment with Eladocagene Exuparvovec in AADC provided the durable and significant benefits with acceptable safety profile.

References

(1) Upstaza (Eladocagene Exuparvovec) Summary of Product Characteristics. PTC Therapeutics. 2022.

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