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LETTER TO THE EDITOR Open Access

Cerebroprotein hydrolysate allergy in patients with traumatic brain injury

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Dear Editor,

Case 1

A 22-year-old male patient had RTA. He was intubated in causality in view of low GCS (E1V1M2), PEARL-2 mm. He has been diagnosed to have diffuse axonal injury, subarachnoid hemorrhage around the brainstem, and fracture of the left femur. He was transfused with two units of PRBCs and hemodynamics maintained with an infusion of noradrenaline (0.1 μg/kg/min). All other routine investigations were normal. He was treated with ceftazidime, levetiracetam 500 mg i.v. tds, and mannitol with 0.25gm/kg/body wt. The patient had a history of allergy for ingestion of goat intestine which has been revealed later by the informant.

On day 2, the patient received injection: cerebroprotein hydrolysate 10 ml (each milliliter contains 215.2 mg of cerebroprotein hydrolysate). Before the commencement of the infusion, his blood pressure was around 120–130 mmHg/70–80 mmHg, with noradrenaline support of 0.1 μg/kg/min. After 30 min of infusing 10 ml of cerebroprotein hydrolysate diluted in 100 ml normal saline, the patient had hypotension (systolic BP lowered to 60 mmHg) and after 3 min developed rashes all over the body. His saturation dropped from 99 to 85%; auscultation of the chest had bilateral extensive rhonchi. He was receiving only cerebroprotein at that time; hence, it was stopped immediately and was managed with i.v. fluids, increasing the dose of noradrenaline infusion to 0.4 μg/kg/min, hydrocortisone i.v. 200 mg, ranitidine 50 mg i.v., and pheniramine maleate 25 mg i.v. There was persistent hypotension, hence inj.adrenaline 200 μg bolus given and infusion started at 0.2 μg/kg/min. Thereafter, vitals showed improvement, BP-100/60 mmHg, and SpO_2-96%, and inotropes were tapered and reached the initial state from 0.4 μg/kg/min to 0.1 μg/kg/min over 6 h of the onset of the event and stopped after 24 h of the event.

Case 2

A 48-year-old male had RTA with left frontotemporal SDH and right temporal EDH with GCS 7/15, PEARL-2 mm. Pt had a history of drug allergy to amoxicillin and food allergy for chana dal (split chick peas) (*Cicer arietinum* (botanical name)). The patient was given cefoperazone + sulbactam 1.5 g i.v. ATD, and no drug reactions were observed. Inj. cerebroprotein infusion was started in a 100-ml infusion immediately; after 1 ml of i.v. infusion, the patient developed rash over the arm and face. The infusion was stopped. A dose of pheniramine maleate 25 mg i.v., inj. hydrocortisone 200 mg, and inj. ranitidine 50 mg i.v. was administered slowly.

Discussion

The neurotrophic factors are small proteins that exert trophic actions on neuronal cells. They are nerve growth factor, glial cell-derived neurotrophic factor, brain-derived neurotrophic factor, neurotrophin 3, growth-associated protein, and ciliary neurotrophic factor. Cerebroprotein enhances the neuronal survival by enhancing the effect through calfin. It provides neuromodulatory action and repair of neurons and has neuroimmunotrophic action (Sharma et al. 2010). It decreases the beta amyloid deposition used in Alzheimer's disease (Plosker and Gauthier 2009); it modulates the neuronal plasticity and is used in traumatic brain injury (Wong et al. 2005) and vascular injury. It

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helps in the differentiation of neurons and protects against ischemia and neurotoxic injury. Common side effects include headache, agitation, fever, chills, flu-like syndrome, hallucination, and confusion. There is drug interaction with monoamine oxidase inhibitors. The neurotropic activity in plasma is detected after 24 h after a single injection (Hartbauer et al. 2001).

Conclusions

It is always better to give cerebroprotein after an intradermal test dose, and it is better avoided in patients with known allergies for protein.

Abbreviations

GCS: Glasgow Coma Scale; i.v.: Intravenous; ATD: After test dose; PEARL: Pupils equal and reacting to light; EDH: Extradural hemorrhage; SDH: Subdural hemorrhage; PRBC: Packed red blood cells

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Authors' contributions

SD contributed to the preparation of the manuscript and was a major contributor in writing the manuscript, SK edited the manuscript, and DBC and AK reviewed the manuscript. All the authors read and approved the final manuscript.

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Availability of data and materials

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Declarations

Ethics approval and consent to participate

Informed written consent was obtained from the patients' relatives, and the institutional ethical committee approval was obtained.

Consent for publication

The authors certify that they have obtained appropriate informed consent from the patients' parents as the patient is a minor. The parents understand that the names and initials will not be published and only the clinical information and investigations and images of the investigations will be reported in the journal, and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Competing interests

We, the authors, declare that we do not have any competing interests.

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References

Hartbauer M, Hutter-Paier B, Skofitsch G, Windisch M (2001) Anti apoptotic effects of the peptidergic drug cerebrolysin on primary cultures of chick embryonic cortical neurons. J Neural Transm 108(4):59–73

Plosker GL, Gauthier S (2009) Cerebrolysin: a review of its use in dementia. Drugs Aging 26(11):893–915. https://doi.org/10.2165/11203320-000000000-00000

Sharma HS, Zimmermann-meinzingen S, Johanson CE (2010) Cerebroprotein hydrolysate reduces blood CSF barrier permeability changes, brain pathology and functional deficits following TBI in rat. Ann N Y Acad Sci 1199(1):125–137. https://doi.org/10.1111/j.1749-6632.2009.05329.x

Wong GKC, Zhu XL, Poon WS (2005) Beneficial effect of cerebrolysin on moderate and severe head injury patient-result of a cohort study. Acta Neurochir 95(suppl):59–60

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