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El enriquecimiento ambiental como estrategia neuroprotectora en asfixia perinatal.

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EL ENRIQUECIMIENTO AMBIENTAL COMO ESTRATEGIA NEUROPROTECTORA EN ASFIXIA PERINATAL

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RESUMEN

La asfixia perinatal es una complicación obstétrica frecuente que consiste en una interrupción temporal en el suministro de oxígeno que ocurre alrededor del nacimiento. La prevalencia es de aproximadamente 1-10/1000 niños nacidos vivos, con altas tasas de mortalidad y morbilidad. Es factor de riesgo para trastornos mentales y neurológicos, incluyendo discapacidad intelectual, trastornos del espectro autista, trastorno por déficit de atención con hiperactividad, epilepsia, esquizofrenia y trastornos neurodegenerativos. No existe actualmente una estrategia terapéutica eficaz para disminuir los efectos deletéreos producidos por la AP. La exposición a un ambiente enriquecido (AE), aún en fase de experimentación animal, se plantea como un posible neuroprotector en AP. El ambiente enriquecido es un paradigma de alojamiento animal que busca explicar los efectos del ambiente y la experiencia sobre el cerebro y sus funciones en animales expuestos a estimulación física, cognitiva, sensorial y social. Se ha probado que la exposición a un AE produce efectos beneficiosos en casos de AP ya que promueve un aumento de la neurogénesis, induce la ramificación dendrítica y la sinaptogénesis, reduce el nivel de estrés oxidativo y favorece la plasticidad cerebral, entre otros efectos positivos.

Palabras clave

Asfixia perinatal - Neuroprotección - Enriquecimiento ambiental - Modelo animal

ABSTRACT

ENVIRONMENTAL ENRICHMENT AS A NEUROPROTECTING STRATEGY IN PERINATAL ASPHIXIA

Perinatal asphyxia (PA) is a frequent obstetric complication which consists in a temporary interruption in the oxygen supply that occurs around the birth. The prevalence is approximately 1-10 / 1000 live births, with high mortality and morbidity rates. It is a risk factor for mental and neurological disorders, including intellectual disability, autism spectrum disorders, attention deficit hyperactivity disorder, epilepsy, schizophrenia, and neurodegenerative disorders. Currently, there is no effective therapeutic strategy to decrease the PA deleterious effects. Exposure to an enriched environment (EE), still in the animal experimentation phase, is considered as a possible neuroprotective in PA. The enriched environment is an animal housing paradigm that seeks to explain the effects of the environment and experience on the brain and its functions in animals exposed to physical, cognitive, sensory and social stimulation. Exposure to an EE has proved to produce beneficial effects in cases of PA, since it promotes an increase in neurogenesis, induces dendritic branching and synaptogenesis, reduces the level of oxidative stress and favors brain plasticity, among other positive effects.

Keywords

Perinatal asphyxia - Neuroprotection - Environmental enrichment - Animal model

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