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Kids and cerebral palsy: The optimistic clinical and neuro-imaging impacts of joint management

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Background & Aim: Cerebral palsy is a common pediatric problem encountered in about 1:3 per 1000 born children and causing variable mental, motor and behavioral dilemmas. Newly introduced trials of neurogenesis with different agents are now extensively evaluated. The aim of the study was to evaluate the neurotrophic response to B12 vitamin and omega-3 fatty acids in children diagnosed early with variable forms of cerebral palsy. The response was monitored both clinically and with CT Scan as being a highly predictive tool for assessing cerebral palsy.

Method: The study was carried out on 40 cerebral palsy patients; 26 (65%) out of them were girls, and 14 of them were boys, aged from 0 to 5 years old; from outpatient clinic at Zakho/Duhok General Hospital in Kurdistan Region-Iraq. Patients were treated and followed up for 6 months to one year. They were represented and adjusted by full history taking and clinical examination. Brain CT scans were done for every patient to assess the degree of brain atrophy before starting this combined therapy and every month for six months to one year. There was an improvement in general health of children after interventional therapy.

Result: The study revealed that early intervention of both omega 3 and B12 vitamin in children under 5 with Cerebral Palsy (CP) shows great response based on clinical examination and CT scan findings. Almost, after combined therapy, 80% of children with delayed speech delay have very good response and improvement, 77% of children with delayed milestone and hypertonia and 87% with delayed walking have positive clinical outcomes. Both sexes have equal response to combined therapy. Such findings were obtained as a result of early treatment and diagnosis of children with CP. In addition, among the treated children with CP, improvement in CT scan results was obtained. 84% of treated children have great improvement in their neuroimaging results from moderate/severe forms of brain atrophy to a mild form of brain atrophy after being treated and followed up for 6 months- 1 year.

Conclusion: The damaged brain sites based on CT scan results, showed progressive improvement in response to B12 and omega-3 fatty acids upon daily supplement throughout 6 months to one year. However, combining these 2 drugs showed preservative synergistic consequences. B12 vitamin and omega-3 fatty acids are valuable therapy for children with various forms of cerebral palsy particularly when being linked. The greatest improvement in speech and motor development was significantly observed in about 32 patients (80%) of treated children with B12 vitamin and omega-3 fatty acids. Others have less response to combine therapy as being presented and diagnosed beyond 1 year of age (16%).

Brain protection during surgery for type I aortic dissection

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There is an endless debate over which cerebral perfusion method results in better brain protection and lower mortality during repair of type A acute aortic dissection. Three main methods of cerebral protection exist, Antegrade Cerebral Perfusion (ACP), retrograde Cerebral Perfusion (RCP) and Deep Hypothermic Circulatory Arrest (DHCA). Although cerebral perfusion seems, in general, to be important for minimizing mortality, the selected method of cerebral perfusion seems to be a less important predictor of death. This is even truer during shorter procedures when Circulatory Arrest Time (CAT) is less than 40 minutes. Furthermore, a short period of CAT allows performing the operation with hypothermic circulatory arrest alone. Although many authors report that a period of DHCA of 40 minutes is safe, it is advisable to remain within 30 minutes while performing the open aortic anastomosis. Some authors reported significantly higher mortality for patients repaired with DHCA (14.5%) compared to those repaired with RCP (3.4%), while others demonstrated higher operative mortality in patients repaired using DHCA alone (26%) compared to those who have ACP (13%) or RCP (16%). Overall, whatever the method of cerebral protection, if circulatory arrest time is greater than 60 min there is a two-fold increase in the risk of mortality. As far as postoperative stroke is concerned, it does not differ, generally, for patients who undergo surgery with DHCA, RCP or ACP and it is commonly agreed that the most important risk factors for stroke are circulatory arrest time over 40 minutes and prolonged CPB time. For this reason, a shorter procedure, i.e. limited to the replacement of the ascending aorta and the intimal tear, instead of radical resection of the entire dissected aorta including the root and arch vessels, gives better results in terms of neurological outcome, length of stay in the intensive care unit and survival.

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