



by Dr. Sunil Kumar Gupta

Down syndrome (DS), the most common genetic cause of mental retardation, results in characteristic physical and neuropsychological findings, including deficits in language and memory. The neurophysiologic basis for these cognitive deficits indicated a defective cerebral perfusion in cases of DS. So far no study has indicated any modality which can improve defective cerebral perfusion in these cases.

It has been reported that after in any neurological insults (including Genetic), three types of neural tissue are left behind: (a) completely dead tissue - Nothing can be done with this tissue (b) partially functioning and (C) normally functioning.

So far there is no way to improve the functioning of partially functioning neural tissue. Conventional therapies mainly based on physiotherapy and early intervention therapy is of help with rather slow improvement and that too not in all cases.

It have been reported that using Indian Ayurvedic system (using Cerebro Flo containg Zingiber officinale, Asparagus racemosus, Terminalia chebula etc.), remarkable clinical improvement was observed. The range of improvement in I.Q varied from 10 - 25 and even more in some cases.

Down syndrome (DS), the most common genetic cause of mental retardation, results in characteristic physical and neuropsychological manifestations, including mental retardation and deficits in language and memory. The neurophysiologic basis for these cognitive deficits still remains poorly understood. Histological findings on autopsy in these cases reported that there is a decrease in the spinous processes of apical dendrites, pyramidal neurons, lack of granular cells, specially that of spinous stellate granular cells, early appearance of neurofibrillary tangles, senile plaques or both at the age of 30-40 years, and, incomplete or delayed myelination in some cerebro cortical regions such as fronto temporal lobes, especially in U fibers and in cerebello cortex. All these observations are indicating that there is decrease in the total number of neurons and of dendritic processes in these cases.

Because of decrease in the total number of neurons and more significantly a decrease in the number of dendritic processes will lead to less metabolic need of oxygen to maintain the resting membrane potentials. This in turn causes an overall decrease in the efficiency of cellular metabolism of neural tissue, which will lead to less metabolic need of oxygen to maintain the resting membrane potentials and hence been represented by decreased in cerebral perfusion. The decrease in cerebral perfusion in cortical and sub cortical areas of brain has also been reported in cases of Down's syndrome by workers on neuroimaging studies. Neurophysiological studies in cases of Down's syndrome also indicated that there is Cerebral perfusion is one of the physiological indicators {indicative of local cerebral metabolic rates for glucose (LCMRglc)} of brain function.

Despite the fact that Down's syndrome have genetic basis, it also has a biological basis. The biological study in cases of DS of the underlying brain abnormalities and of putative genetic mechanisms has received little attention. In vivo neuroimaging studies of brain in DS have demonstrated an abnormal cerebral perfusion patterns in cortical and sub cortical areas of brain by many workers. So far no study has revealed any modality for improving cerebral perfusion in cases of DS.

Treatment with Indian Ayurveda system (using Cerebro Flo containing Zingiber officinale, Asparagus racemosus, Terminalia chebula etc.) reported remarkable clinical improvement in these patients. The range of improvement in I.Q varied from 10 - 25 and even more in some cases. Study with Cerebro Flo reported significantly lowered cerebral perfusion in fronto-parieto-temporal region leading to reduced cortical



Case of Down's syndrome

Down syndrome (DS), the most common genetic cause of mental retardation, results in characteristic physical and neuropsychological manifestations, including mental retardation and deficits in language and memory.

activity in cases of DS explaining the motor disinhibition (such as stereotypic and manneristic movements and echophenomena), and deficits in planning, sequencing, emotional and behavioural disorders and attention. Post treatment SPECT studies have indicated a significant improvement ($P < 0.05$) in cerebral perfusion in cases of DS. (Fig 1) Significant improvement in cognitive function, responses to sensory stimuli, obsessive desire for sameness, impairment in communication and social interaction was also observed after Cerebro Flo supplementation. No adverse reaction was observed.

It is indicative that Cerebro Flo supplementation improves in the cerebral perfusion at hypoperfused cortical and subcortical areas of brain, in cases of Down's syndrome leading to improvement in neural plasticity, causing growth of the spinous processes of apical dendrites of the neuron's resulting into / or increasing number of functional synapses. It is further important even if the neurons does not reproduce or grow after 2nd year of the postnatal life, the increase in cerebral perfusion i.e. an increase in the demand of energy to maintain the resting membrane potential will improve the on going neuronal activity.

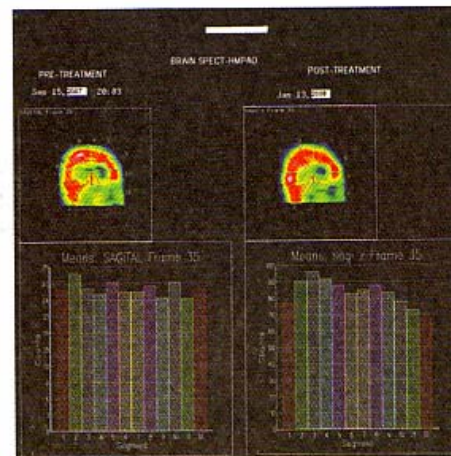


FIGURE 1: QUANTITATIVE SEGMENTAL ANALYSIS OF SPECT BRAIN PRE AND POST TREATMENT



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