

EXPLORATORY STUDY OF HIPPOCAMPAL VOLUME IN CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER WITH SPEECH AND LANGUAGE DELAY.

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Introduction

Hippocampus is proposed to be involved in Attention Deficit Hyperkinetic Disorder (ADHD). The current study was planned to assess the volume of hippocampus in children with ADHD children with predominantly speech and language delay using MRI Brain imaging.

Material & methods

Coronal sections of MRI brain (1.5 Tesla) of the children with clinical diagnosis of ADHD as per Diagnostic & Statistical Manual-V were obtained perpendicular to long axis of hippocampus (Slice thickness=2mm) using epilepsy protocol. Images were taken in DICOM viewer (oblique coronal sequence -T1 weighted) using isotropic imaging (3-D image reconstruction). Entire hippocampus formation was outlined manually using region of interest approach (ROI) with Image-J software available freely from www.freesurfer.com. Measurement of hippocampus was done using standard approach described previously.

Results

Study reports non-normalized volumes of hippocampus three children (M:F=2:1); first child (5YF)=1846 mm³ (L) and 2266.8 mm³ (R), second child (5YM) had 1474.5 mm³ (L) and 1804.7 mm³ (R), and third child (3YM) had 1984.4 mm³ (L) and 1615.6 mm³ (R) respectively. The mean volume (bilateral) was 1882±81.

mm³, which in comparison with normal Indian children (2620±183cmm³) has a volume loss of 28%.

Conclusion

Current study reports a substantial shrinkage (28%) of left and right hippocampus compared to historical controls.

Keywords: Hippocampus, atrophy, attention deficit hyperactivity disorders.

