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Neurology

ANALYSIS OF NEUROLOGICAL SOFT SIGNS IN PRIMARY HEADACHE PATIENTS

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ABSTRACT

Introduction: NSS correlates with neuroanatomical, neurocognitive abnormalities which represents defective neural intregration. Neurological examination is usually normal and investigations are non contributory in patients with primary headaches. NSS can be used to identify a specific subset of headache patients.

Aim of Study: To assess neurological soft signs in primary headaches using Heidelberg scale.

Materials and Methods: It is a crosssectional study of 60patients attending our headache and neurological OPD in RGGGH Chennai. Diagnosis of headache made by HIS criteria.

Inclusion Criteria: Age >18 and < 60 years. H/O of > 1 to < 15 attacks / month.

Exclusion Criteria: H/O intake of psychoactive medications,psychiatric illness, head trauma, secondary headaches.

Results: Of the 60 patients examined 55 of them presented with migraine, 5 with tension type headache with a mean duration of 1 - 10 years. The NSS score was increased in patients with a longer duration of headache. 20 of the 60 had increased scores .6 of the 20 had increased scores in all the domains.7 of them had defective motor coordination,3 in spatial orientation, 4 in complex motor tasks. Only 5 patients had WMH lesions.

Conclusion: Patients with chronicisation of headaches had increased NSS scores. Endophenotypes of psychiatric comorbitidies may be present which may be missed by routine clinical examination. Tailored pharmacotherapy may be beneficial and cost effective.

KEYWORDS :

Migraine is a common neurological disorder and can produce severe disabling attacks, with the highest prevalence during the most productive span of life between 25 and 55 years.Neurological abnormalities have conventionally been divided into “hard signs” and “soft signs” . “Hard signs” usually indicate focal neurological deficits localized within specific brain regions, whereas “soft signs” are conventionally defined as subtle signs without an identifiable or localized brain region. NSS expression has been rarely used in neurological evaluation , possibly because of neurological semeiotics failing to localize lesions with the only notable exceptions relate to NSS correlations with specific cognitive functions and impairments, mainly of the executive type . More standardized neurological soft sign examination systems is Heidelberg scale . Neurological soft signs predict abnormalities within the cerebellar–thalamo–prefrontal circuitry. NSS assessment encompasses different domains, such as motor coordination.e.g., finger-to-nose test or diadochokinesis), up to complex motor sequences (e.g., Ozeretzki’s or Luria’s tests), and often include also sensory integration (e.g., stereognosis or graphesthesia). Furthermore some NSS scales include the assessment of primitive reflexes as well (e.g., snout or Myerson reflexes).

Methods : In this cross sectional study 60 consecutive patients attending our headache OPD were recruited after an informed consent. Diagnosis made according to latest 3 beta classification of headache and subsequently classified accordingly.

Inclusion Criteria: Age >18 and < 60 years. H/O of > 1 to < 15 attacks / month. Patients were excluded if there is an H/O intake of psychoactive medications, psychiatric illness, head trauma, secondary headaches. Detailed history about triggers, life style changes, sleep cycle, drug intake, frequency of headache during and prior 6 months were recorded and neurological examination is done.

Neurological soft signs assessment was made using the Heidelberg scale and is carried out in a quiet atmosphere. Gait, tandem walking, right/ left orientation, arm-holding test, Finger-to-nose test, Ozeretzki's Test, Diadochokinesis, Pronation-supination,Finger-to-thumb opposit ion, Mirror movements, Two-point-discrimination, Graphesthesia, Face-hand test ,Stereognosis are components of the test to be examined.

The patients´ ability to perform a given exercise is scored as:

0: Patient has no, or inconspicuous difficulty with the exercise.
1: Slight, just perceivable or shortly intermittent problems.
2: Recognisable difficulty with the test exercise.
3: Marked difficulty, continually present problems, or completely defective performance. In an otherwise normal performance (score=0), clear body side differences are quantified by score=1.

The examination is carried out in standing.

MRI brain imaging is done in all patients with white matter hyperintensities graded by Fazekas.

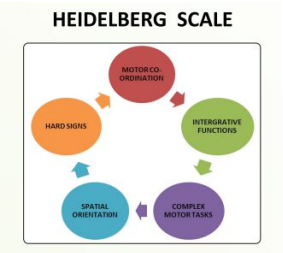
RESULTS : Migraine was the commonest headache found in 55 out of 60 patients examined.5 patients had tension type headache. Headache duration ranged from 1-10 yrs in these patients. White matter hyperintensities were found in only 5 patients on brain imaging and were fazekas grade 1. Diabetic, hypertensive and dyslipidemic patients were not included in the study because of their propensity to cause white matter hyperintensities. Patients with long duration of headache had increased NSS scores. Only 20 of the 60 patients examined had increased NSS scores. Increased scores in all the domains occured only in 6 of the 20 patients. On analysis of each score separately 7 of them had defective motor coordination (Ozeretzki’s test, diadochokinesis, speech and articulation),3 in spatial orientation (right/left orientation, stereognosis), 4 in complex motor tasks (fist-edge palm-test).

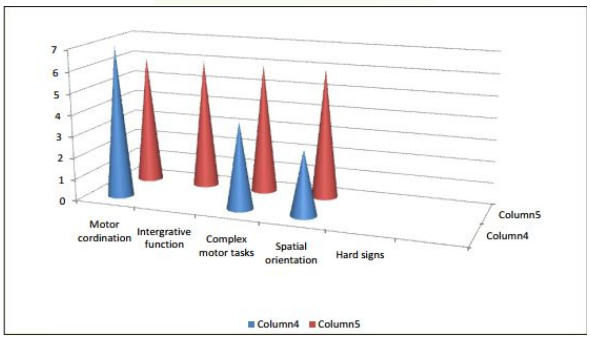
DISCUSSION : In our study there is an clear increase in expression of NSS with long standing headaches. There was no correlation between NSS and white matter hyperintensities. This suggests that there is abnormalities in brain circuity in patients with chronicity of hedaches which are not routinely detected by standard neurological examination and brain functional imaging such as positron emission tomography and functional magnetic resonance has played a pivotal role in recent years in identification of specific brain locations. Identification of these headache patients is important as their frequent hospitalization leads to work absenteeism and increases the economic burden of the society.

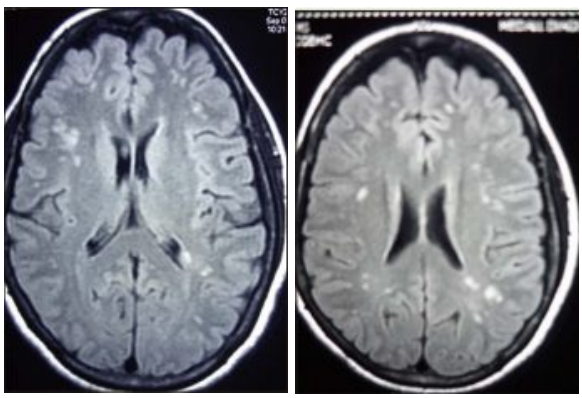
CONCLUSION : NSS has been mostly addressed in the field of psychiatry than neurology. Patients with chronicisation of headaches

had increased NSS scores. Endophenotypes of psychiatric comorbiti dies may be present which may be missed by routine clinical examination. Tailored pharmacotherapy may be beneficial and cost effective. The limitation of this study is to compare with controls and since the sample size is small more patients need to be recruited so as to translate this study into routine clinical practice. This is a noninvase tool which can be used in a outpatient basis itself.

DIAGRAMS :







REFERENCES

1. Tremolizzo L, Ferrario S, Pellegrini A, Fumagalli L, Ferrarese C, Appollonio I. Neurological soft signs in primary headache patients. Neuroscience letters. 2015 May 19;595:41-4.
2. Mittal VA, Dean DJ, Bernard JA, Orr JM, Pelletier-Baldelli A, Carol EE, Gupta T, Turner J, Leopold DR, Robustelli BL, Millman ZB. Neurological soft signs predict abnormal cerebellar-thalamic tract development and negative symptoms in adolescents at high risk for psychosis: a longitudinal perspective. Schizophrenia bulletin. 2013 Dec 27;40 (6):1204-15.
3. Li HJ, Wang PY, Jiang Y, Chan RC, Wang HL, Li J. Neurological soft signs in persons with amnestic mild cognitive impairment and the relationships to neuropsychological functions. Behavioral and Brain Functions. 2012 Jun 7;8(1):29.
4. Zhao Q, Li Z, Huang J, Yan C, Dazzan P, Pantelis C, Cheung EF, Lui SS, Chan RC. Neurological soft signs are not "soft" in brain structure and functional networks: evidence from ALE meta-analysis. Schizophrenia bulletin. 2013 May 13;40(3):626-41.
5. Wang SJ, Chen PK, Fuh JL. Comorbidities of migraine. Frontiers in neurology. 2010;1.
6. Gentili C, Panicucci P, Guazzelli M. Psychiatric comorbidity and chronicisation in primary headache. The journal of headache and pain. 2005 Sep 15;6(4):338-40.