ANALYSIS OF NEUROLOGICAL SOFT SIGNS IN PRIMARY HEADACHE PATIENTS

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ABSTRACT

Introduction: NSS correlates with neuropsychiatric, neurocognitive abnormalities which represents defective neural integration. 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 cross sectional study of 60 patients attending our headache and neurological OPD in RGGH Chennai. Diagnosis of headache made by HIS criteria. 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, spatial orientation, complex motor tasks. Only 5 patients had WMH lesions.

Conclusion: Patients with chronicisation of headaches had increased NSS scores. Endophenotypes of psychiatric comorbidity 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 semiotics failing to localize lesions with the only notable exceptions relate to NSS correlates with neurocognitive abnormalities which represents defective neural integration. 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.

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, lifestyle 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, Ozeretzkii’s Test, Diadochokinesis, Pronation-supination,Finger-to-thumb opposition arm, 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: Recognizable 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 fazeakas 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 occurred only in 6 of the 20 patients. On analysis of each score separately 7 of them had defective motor coordination (Ozeretzkii’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 a 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 circuitry in patients with chronicity of headaches 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 comorbidities 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 noninvasive tool which can be used in an outpatient basis itself.

REFERENCES