“SERUM CORTISOL AS A PROGNOSTIC FACTOR OF EARLY STROKE”

General Medicine

Dr. R. Murugaraj* (PG), Professor. *Corresponding Author

Dr. V. Padma

Dr. Rameez Raja (AP)

KEYWORDS

AIM OF THE STUDY

1. The aim of the study is to investigate if a single serum cortisol could predict the prognosis of early stroke.
2. Whether serum cortisol as well as stroke severity is related to any clinical or paraclinical parameters of known relevance in acute stroke.
3. To gain knowledge of the level of correlation between various clinical and paraclinical parameters (BP, Blood sugar and total count) with serum cortisol and stroke severity.

MATERIALS AND METHODS

This study included a total number of 65 patients who were admitted with acute stroke within a period of 24 hrs of onset. Informed consent was obtained. The patients were recruited from medical wards and IMCU of the sree balaji medical college and hospital. Out of the total 65 patients, 15 patients were excluded as per the exclusion criteria.

The remaining 50 patients were selected for the study.

Exclusion criteria used

- Age < 18
- Liver disease
- Pregnancy
- recurrent stroke
- Patients who are taking following drugs
- Phenytoin
- Steroids
- Rifampicin
- Ketoconazole

METHODOLOGY

At the time of admission in the hospital the pulse rate, systolic and diastolic blood pressure, and Scandinavian Stroke Scale (SSS) were recorded in all the patients. A diagnosis of cerebral infarction or an intracerebral hemorrhage was based on clinical findings as well as history at the time of admission and with the help of CT-scan in all these patients. Blood samples were taken for total count, blood sugar values, and serum cortisol levels.

Barthel index and Modified Rankin score were calculated at discharge and then monthly till 3 months from onset of stroke. Single-measurement of serum cortisol at admission was chosen as, earlier studies have shown that the circadian rhythm of cortisol secretion is lost in acute stroke.

SEX DIFFERENCE IN SERUM CORTISOL VALUE

IMPACT OF AGE ON CORTISOL VALUE

SERUM CORTISOL AND STROKE TYPE

MEAN CORTISOL VALUE AND SSS

CORTISOL AND BARTHEL INDEX AT 3 MONTHS

CORTISOL AND MRS at 3MONTHS **CONCLUSION**

1. High serum cortisol correlated with severity of stroke as evidenced by an inverse relation with SSS. As serum cortisol level increases SSS score decreases.
2. High serum cortisol also correlated with systolic blood pressure, diastolic blood pressure, total count and admission blood sugar level. The highest correlation coefficient was observed with random blood sugar level at admission and the lowest was for diastolic blood pressure. This shows that admission blood sugar level correlates well with serum cortisol and hence with stroke severity.
3. Serum cortisol is a prognostic marker to predict functional outcome and mortality in patients with stroke. This is evidenced by high correlation between serum cortisol and indices of functional outcome like BI and MRS at the end of three months.

REFERENCE

1. Zi WJ, ShuaiJ. Cortisol as a prognostic marker of short term outcome in chinese patients with acute ischemic stroke. PLoS One. 2013;8(9)
2. Feibel JH, Hardy PM, Campbell GC, Goldstein MN, Joynt RJ. Prognostic value of stress response following stroke. JAMA 1977;238: 1374-6.
3. Meyer JS, Stoica F, Pascu I, Shimazu K, Hartmann A. Catecholamine concentrations in CSF and plasma of patients with cerebral infarction and hemorrhage. Brain 1973;96:277-88.
4. Murrus K, Fogelholm R, Kettunen S, Vuorela AL. Serum cortisol and outcome of ischemic brain infarction. J NeurolSci 1993;116:12-7.
5. O'Neill PA, Davies I, Fullerton KJ, Bennett D. Stress hormone and blood glucose response following acute stroke in the elderly. Stroke 1991;22:842-7.
6. Slowik A, Turaj W, Pankiewicz J, Dziedzic T, Szermer P, Szczudlik A. Hypercortisolemia in acute stroke is related to the inflammatory response. J NeurolSci 2002;196:27-32.