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Can B-Type Natriuretic Peptide (BNP) Be A Predictor Biomarker of Stroke Mortality?

Early detection of potential mortality in stroke patients carries crucial importance for starting aggressive treatment methods early on. Even though there are clinical and radiological parameters predicting the prognosis with high accuracy, there are no reliable biomarkers obtainable through a blood analysis. In their meta-analysis published in Neurology last year, García-Berrocoso et al. (1) investigated to what extent could B-type natriuretic peptides predict stroke mortality in the early stages.

BNP is a vasodilating hormone providing sodium diuresis. This hormone is released due to the tension effect in the heart, with the inactive cardiac ventricular myocyte N-peptide fragment (NT-proBNP). Since the half-life of the BNP is 20 minutes and NT-proBNP's is 120 minutes, the high levels of the latter in the plasma is an evidence of recent cardiac stress. The real reason for this stress during stroke is the excessive sympathetic discharge.

García-Berrocoso et al. looked at 16 studies including a total of 3500 patients where BNP and NT-proBNP measurements were acquired due to ischemic/hemorrhagic stroke and transient ischemic attack. According to the results, the BNP/NT-proBNP levels in the deceased patients were on average 256 pg/ml (95% CI 105.10-406.47, p=0.001) higher compared to the surviving ones. It is also worth noting that both peptides had higher levels in women, non-smokers and those with atrial fibrillation as well as being positively correlated with the NIH scale score (NIHSS) at the initial consultation.

95% CI 1.75-3.94, p=0.00195% CI 1.75-3.94, p=0.0011.

References

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Can Bacille-Calmette-Guérin (BCG) Vaccination Delay the Conversion of Clinical Isolated Syndrome to Multiple Sclerosis?

Clinical isolated syndrome (CIS) is the name given to the first demyelinating event seen in the central nervous system. Half of these patients have their second clinic attacks and convert to clinically definite multiple sclerosis (MS) within 2 years. Numerous studies documented that all of the interferons and glatiramer acetate that are currently in use can delay the occurrence of this second clinical attack.

There have been emergent findings showing Bacille-Calmette-Guérin's (BCG) effect in reducing magnetic resonance signs in the recurrent MS patients. Moreover, studies also shown this vaccine's adjuvant effect for autoimmune diseases such as type-1 diabetes and asthma (1,2).

In a study by Ristori et al. that was published in Neurology last year, they investigated the effect of BCG vaccination on CIS patients in a placebo controlled study (3). The study included 82 patients consulted in four Italian MS centers. The patients were randomized into two groups, one of which was given BCG vaccine within 3 months of the clinical attack and placebo in the other group. After that, all patients received interferon β-1a 30 µg/week (Avonex®) treatment for 60 months.

In the study, the BCG group showed improvement even in the radiological follow-up at 6 months. Even though 46% of the vaccinated patients showed contrast-defined lesions, this rate was 75% in the placebo group (relative risk increase 30%). It is important that the vaccination group showed a significant difference in terms of the number of new T2 and T1 lesions. Even though there was not a statistically significant difference for the relapse rate within the first 6 months, the relapse rate in the vaccination group was less (13% versus 6%, p>0.05). The cumulative relapse rate was markedly less in the vaccination group at the 18th month

(63% versus 30%, p=0.01). While 58% of the vaccination group did not show a second attack within the 5 year follow-up, this rate was only 30% for the placebo group.

The effect of BCG vaccination on the inflammation is unclear. The underlying causes can be antigenic competition, re-routing of autoreactive T-cells to different regions, the decline in proinflammatory factors or the modulatory effects of the vaccine on the regulator cells. A phase III study where the effect of BCG on CIS patients in the absence of interferon treatment should be planned rapidly. The potential additive or long-term effects of additional doses or boosters of the vaccine should also be investigated in such studies.

References

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Intriguing Suggestions from American Headache Society

Following the Choosing Wisely campaign started by American Board of Internal Medicine in 2012, American Headache Society also formed a committee on the certain issues that concern clinicians and patients. The suggestions of this committee on headache treatment were published in Headache journal last year (1).

Among 100 topics listed by the committee, 5 topics stood out after a rating process. The topics include these suggestions:

1. Imaging work should not be conducted on patients who satisfy the criteria for migraine with normal examination findings and stable headaches.

2. Computerized tomography should not be requested when MRI is available, unless hemorrhage, trauma or acute stroke is suspected.

3. Except for the clinical studies, surgical deactivation of trigger sites for migraine should not be recommended

4. Drugs containing opioids or butalbital should not be used in recurrent headache.

5. Long-term analgesic treatments should be avoided in headache treatment.

Besides those, other important points emphasized the unnecessarily frequent use of EEG, caffeine-containing analgesics, botulinum toxin application for episodic migraine or non-migraine headaches, diet, and allergy tests.

As a public health issue, headache constitutes the primary cause of emergency room visits. The improper or overuse of tests and treatments may cause more harm to the patient than benefit. It should be noted that the serendipitous discovery of asymptomatic lesions might also cause unnecessary worry and further tests.

References

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