Scand J Rehab Med 16: 27–28, 1984

HLA-B27 AS A DIAGNOSTIC SCREENING TOOL IN CHRONIC LOW BACK PAIN

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ABSTRACT. Forty-five of 52 consecutive patients with chronic low back pain were screened for presence of HLA-B27 antigen one year after they were included in a rehabilitative program. Six (13.3 %) were positive and, when re-examined radiographically, 2 had signs of ankylosing spondylitis. The proportion of antigen-positive individuals is similar to that found in a population study of healthy Swedish blood donors, and within the range of other populations of healthy controls. It is concluded that HLA-B27 is of limited diagnostic value as a screening test for ankylosing spondylitis in a patient group with chronic low back pain.

Key words: HLA-B27, ankylosing spondylitis, low back pain, prediction

Chronic low back pain is a common cause of functional limitation and disability, not infrequently leading to prolonged or permanent sickness absence from work. Being a symptom and not a disease, chronic low back pain can arise from several etiologies. Degenerative changes are considered to be the most frequent cause, but chronic low back pain can sometimes indicate inflammatory disease. Back pain of inflammatory etiology can be difficult to diagnose, at least in the early stages. Great interest was therefore expressed when a statistically significant association was reported (1, 7) between ankylosing spondylitis (AS) and a histocompatibility complex antigen HLA-B27. Typing for HLA-B27 has thereafter been used as a diagnostic tool, but the clinical value of its use on a routine basis has been uncertain.

In recent years the association between HLA-B27 and AS has been clearly documented. The specificity is low, however, reducing the value of routine typing for screening purposes. Calin (2) found the sensitivity to predict ankylosing spondylitis from the presence of HLA-B27 to be 95%, whereas the specificity was only 20%. In 1979 Jaijic (4) reported a surprisingly high percentage (42.4) of HLA-B27-positive subjects in a series of patients with chronic low back pain, and concluded that the diagnostic value was significant. Some uncertainty arose from the fact, however, that Jaijic's papers reported on patients from a rheumatology ward, where selection can have prevailed.

The purpose of the present study was to evaluate the diagnostic role of HLA-B27 in a group of patients with chronic low back pain, in which inflammatory disease was not clinically suspected on the basis of history, physical examination and radiographs.

PATIENTS AND METHODS

HLA-B27 typing was done on a group of patients, who formed part of a study material in which the purpose was to evaluate different prospective factors in patient rehabilitation. Typing was done at least 6 months after the onset of the main study in which 52 patients took part. The inclusion criteria in the study were that the subjects should have been off work for at least 3 months, be less than 50 years of age, and have no signs of root compression. Radiographs were taken of all patients before inclusion, and at that time showed no signs of AS. All patients were caucasians. Data about their physical status, pain history and psychological and social status will be presented elsewhere. No signs of inflammatory disease were noted. All patients were asked to participate in the HLA-B27 screening. Seven chose not to. Of the remaining 45 patients, 29 were male, 16 female. The mean age was 41 years (range 28–51).

Histocompatibility antigen typing was performed using a standard microlymphocytotoxic technique (5). New roentgenographs of the sacro-iliac joints and lumbar spine were taken in the patients shown to be HLA-B27 positive, about one year after the start of the study.

RESULTS

Six of the 45 patients were HLA-B27-positive (13.3%). Two of these patients had radiographic signs of AS at follow-up. One patient, a 49-year-

old man, had at that time no clinical signs of the disease and worked full time as a taxidriver. The other one, a 30-year-old woman had continued back pain, and was in need of treatment.

DISCUSSION

The prevalence of HLA-B27 antigen is different in different ethnic groups. In caucasian populations, it varies between 5 and 10% (1, 3, 7). In a material of 500 healthy blood donors from the same region as the probands, 10.6% were HLA-B27-positive (6). The present study does not indicate any significant increased proportion of individuals with HLA-B27 among chronic low back patients, as defined above, when compared with these healthy control populations. The outcome of our investigation is that analysis of the HLA-B27 antigen is both expensive and of limited clinical value as a screening test for AS in patients with low back pain.

The test may be of diagnostic value, however, along with other symptoms and signs. These include the history, where stiffening after rest is also noted and limitations of chest and spinal mobility on physical examination. Furthermore, involvement of other joints would constitute a relative indication, as well as the difficulty of interpreting subtle changes on the radiograms.

ACKNOWLEDGEMENTS

This study was supported by a grant from The Göteborg Medical Society, The Asker Foundation and The Delegation for Social Research (within the Ministry for Health and Social Affairs).

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