AGAROSE GEL ELECTROPHORESIS AS SCREENING TEST FOR MULTIPLE MYELOMA CASES

(Pandey J, Kothari SK, Lata K, Talib VH, Shrivastava RK. A simple screening procedure for detection of infraclinical cases of multiple myeloma. Indian J Pathol Microbiol 1993; 36 : 453-7).

Summary

Objective : To study effectiveness of agarose gel electrophoresis as a screening tool for early detection of multiple myeloma.

Design : A prospective study in OPD setting.

Patients : Two hundred and nineteen patients (126 females and 93 males) in the age group of 28-82 year referred to Department of Physical Medicine and Rehabilitation from various departments for treatment of unexplained pains and aches (with or without osteoporosis). They had been investigated and were adjudged organic disease free.

Intervention : Agarose gel electrophoresis was carried out on sera of these patients. Bone marrow aspiration was done for all those patients whose serum showed a monoclonal protein peak. Characterisation of M peak was also carried out by immunoelectrophoresis.

Main result : Out of the 219 patients, sera of 29 patients showed a monoclonal protein peak. Immunoelectrophoresis and bone marrow aspiration confirmed the diagnosis of multiple myeloma in these patients. 17 were male and 12 were female patients. All of them were over 50 years of age.

Conclusion : Agarose gel electrophoresis was found to be very sensitive test for early detection of multiple myeloma cases. Hence it was strongly recommended to be used as a screening test for all elderly people who present with unexplained aches and pains with or without osteoporosis.

Comments

While reviewing the multiple myeloma cases, it was observed by authors that most of them were diagnosed quite late. Many of these patients were however under medical care for unexplained aches and pains for two years or more. Early detec-

tion of multiple myeloma in them might have been possible if some sort of specific screening test was available. The available investigations like skeletal survey, NMI's or bone marrow aspiration cannot be used in screening programme, being expensive and invasive. In search of a screening test, the authors noted that M component proteins are demonstrable in virtually all patients of multiple myeloma [1]. In fact, these proteins show rising levels as the disease progresses [2]. Hence the authors wanted to take help of these facts in evolving a screening test for detecting multiple myeloma cases at infraclinical level. In the available technique for detection of the proteins, agarose gel electrophoresis was considered most suitable as it is highly sensitive in detecting low levels of monoclonal protein [3]. The procedure itself is rapid and cheap. More so, the plates for estimation are commercially available. The authors tried the technique and it was found quite sensitive, as 29 patients out of 219 presenting with unexplained pains and aches were found to have positive myeloma peak. Bone marrow aspiration of all these patients confirmed the diagnosis of multiple myeloma. Based on these findings, they have rightly recommended agarose gel electrophoresis as a rapid, simple and sensitive test for screening of all patients presenting with unexplained pains and/or osteoporosis.

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