Evaluation of gastrointestinal involvement of Behçet’s disease by nuclear medical techniques

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To evaluate the value of nuclear medicine procedures in the diagnosis of gastrointestinal involvement of Behçet’s disease in asymptomatic patients, Tc-99m human immunoglobulin (HIG) and Tc-99m leucocyte (LC) whole body scintigraphies were performed on 30 patients with major symptoms of the disease. Comparison of the results with other diagnostic techniques showed that Tc-99m HIG whole body scanning can be a useful diagnostic aid before the disease becomes clinically active in the gastrointestinal system.

Key words: Behçet’s disease, Tc-99m human immunoglobulin, Tc-99m leukocytes

INTRODUCTION

Behçet’s syndrome is a multisystem disease which may also involve the gastrointestinal tract (GI). A fatal outcome may occur when the gastrointestinal system is involved.1

The exact cause of the disease is unclear and there is no universally accepted diagnostic test. In 1990 an international study group (ISG) agreed upon a set of criteria for the diagnosis of Behçet’s disease. According to ISG criteria, genital ulcerations, eye lesions, positive pathergy test, skin lesions and oral ulcerations are major symptoms of the disease; whereas subcutaneous thrombophlebitis, deep vein thrombosis, epididymitis, arterial occlusion and/or aneurysms, central nervous system involvement, arthralgia, family history, GI features and arthritis are named as minor symptoms.2

Being a systemic disease that can be seen in any organ of the body, Behçet’s disease is the concern of all specialties in medicine. Researchers give conflicting values for the involvement rate of the disease in certain organs and it also seems to be region dependent.3 Since the etiology of the disease is still unknown, clinicians rely on identification of symptoms with various techniques for diagnosis.

The use of nuclear medical techniques in Behçet’s disease is limited to only a few studies. Mudun et al.4 tried Tc-99m glucoheptonate scintigraphy in patients suffering from uveitis because of Behçet’s disease and concluded that the method was not sensitive enough for evaluating ocular involvement of the disease. Nuclear medical techniques were also used in a case of aggressive pulmonary involvement of Behçet’s disease.5 Keshavarzian et al.6 are among the first who used labeled leukocytes in Behret’s disease and concluded that GI involvement of the disease is rare in the absence of symptoms. A case study showed the utility of In-111 leukocyte imaging for detecting active inflammatory bowel disease in a patient with documented Behçet’s vasculitis.7

Another group performed Tc-99m LC scintigraphy in patients with known Behçet’s disease to demonstrate vasculitic changes occurring in this disease. Their results showed that Tc-99m LC scintigraphy might be indicative of vascular pathology in Behçet’s disease.8 There is a combined radionuclide ventriculography and Doppler echocardiography study claiming that left ventricular function is altered in Behçet’s patients.9 All other studies related to the use of NM techniques in Behçet’s disease are about Tc-99m HMPAO brain scanning in neuro-Behçet disease.10-16

The aim of this study is to present a scanning technique for the determination of gastrointestinal involvement of
Behçet’s disease in asymptomatic patients. For this purpose Tc-99m HIG and Tc-99m LC whole body scintigraphies were performed and the results were compared with those of other diagnostic techniques.

**METHODS**

**Patients**

For this study 30 patients with major symptoms of Behçet disease according to ISG criteria were chosen. They were being followed and under colchicine therapy in the Outpatient Clinic for Behçet’s disease of Ankara University Hospital. Ages ranged from 21 to 48 (mean: 38.1 ± 4.1 yrs). Sixteen were men and 14 women. The study was made 1–15 yrs (Mean 5.4 ± 1.8 yrs) after the first diagnosis of the disease. None of the patients reported flare up periods within the previous 3 months and none of them had specific gastrointestinal complaints.

**Scintigraphy**

A polyclonal HIG kit (Mallinckrodt Diagnostica, Petten, The Netherlands) was labeled with 740 MBq (20 mCi) Tc-99m pertechnetate in 2 ml saline. Each patient was intravenously injected with 370 MBq (10 mCi) of Tc-99m HIG. Whole body SPECT images were taken 2–4 h and 20–24 h after the injection. Abdominal spot images also were taken.

Two days later the same patients were scanned with Tc-99m hexamethylpropylene-amine oxime (HMPAO) labeled autologous leukocytes starting with 45 ml whole...