The Role of Food in the Pathogenesis of Migraine Headache†

T. Ray Vaughan

Allergy/Immunology Service, Fitzsimons Army Medical Center, Aurora, CO 80045-5001

Recent textbooks of neurology and internal medicine cite food, or pharmacologic agents in foods, as provokers of migraine (1,2). Nevertheless, this area remains controversial. Many authorities recognize foods containing pharmacologic agents, such as tyramine, as possible provokers of migraine. However, the importance of foods lacking these properties is less clear. During the 1980s, there was renewed interest in food-induced migraine. Studies have attempted to address the incidence of food-induced migraine and have recently begun to study potential mechanisms. This paper will review the general features of migraine, including prevalence, differential diagnosis, and known provokers, and then focus on the link between food and migraine.

Introduction

The Ad Hoc Committee on the Classification of Headache (3) defined migraine as “Recurrent attacks of headaches widely varying in intensity, frequency, and duration. The attacks are commonly associated with anorexia, and sometimes, with nausea and vomiting; in some are preceded by, or associated with, conspicuous sensory, motor, or mood disturbances; and are often familial.” Migraine may be further subdivided into “classic” migraine, in which headache symptoms are preceded by a disturbance in neurologic function or prodrome, and “common” migraine, in which such warning signs are absent (1). The classic form accounts for <20% of attacks, with most patients suffering with common migraine (4). In addition, the

†The opinions or assertions contained herein are the private views of the author and are not to be construed as official or as reflecting the views of the Department of the Army or the Department of Defense.
term "complicated" migraine is used to describe migraine headaches in which focal neurological defects may persist throughout the headache period and even leave permanent residual (2).

Migraine is a common disorder. Prevalence estimates range from 3–5% to 20–30% of the general population (1,2,5). Waters and O’Connor, in three separate epidemiological surveys, found prevalences of 23–29% in women and 15–20% in men (5).

Symptoms of migraine may begin at any age; however, up to 50% of subjects will suffer their first attack before the age of 20 (6). The frequency and severity of migraine symptoms tend to decrease as patients reach the age of 50–60 (7). The disease is more common in women, and a positive family history of migraine is present in 60–70% of subjects (6,8).

The diagnosis of migraine is usually straightforward, based on a thorough history and physical examination. However, other disease processes may mimic the presentation of migraine (Table 1). Seizures occur slightly more frequently in subjects with migraine than in the general population. In a rare individual, headache may be a presenting symptom of seizure (7,8). In questionable cases, the electroencephalogram is a useful diagnostic tool.

Aneurysms and angioma may be associated with recurrent headaches. However, these headaches are invariably located on the same side of the head, whereas migraine will, at least on occasion, be on alternate sides. In addition, with these lesions, focal neurological signs may be present (7,9). Pituitary, parapituitary, and occipital lobe tumors may mimic migraine in some patients; however, papilledema and focal neurological findings help differentiate these possibilities (9). Temporal arteritis can present with unilateral, throbbing headache. The superficial temporal artery may be tender, firm, or nodular, and the erythrocyte sedimentation rate is markedly elevated (10). Temporal artery biopsy is diagnostic for temporal arteritis (7,11).

Cluster headaches can usually be differentiated from migraine by the clinical history. Cluster headaches are short-lived attacks of acute, severe head pain. The clusters of headaches may last for sev-