Age at Onset of Major Depression in Inner-City Adults With Asthma

O. Lizette Solis, B.A.
David A. Khan, M.D.
E. Sherwood Brown, M.D., Ph.D.

Depression generally begins before Type II diabetes and coronary artery disease; however, no data are available on whether asthma or major depressive disorder (MDD) have an earlier onset. The age at onset of asthma and depression were collected from 85 adult asthma patients with current MDD. The mean ages at onset of asthma and MDD were 21.0 years and 28.8 years, respectively. Asthma preceded MDD in 62% of cases; MDD preceded asthma onset in 24% of cases; and asthma and MDD had a concurrent onset in 14% of the cases. In asthma patients, unlike patients with Type II diabetes and coronary artery disease, depression appears generally to occur after the onset of asthma.

(Much of this research was supported by a grant from the Richard and Suzan M. Simons Foundation, from the National Insti-
tutes of Health, and from the Robert Wood Johnson Foundation.

Received May 11, 2005; revised October 13, 2005; accepted October 20, 2005. From the Dept. of Psychiatry and the Allergy and Immunology Division of the Dept. of Internal Medicine, Univ. of Texas Southwestern Medical Center, Dallas. Address correspondence and reprint requests to Dr. Brown, Dept. of Psychiatry, Univ. of Texas Southwestern Medical Center, 5323 Harry Hines Blvd., Dallas, TX 75390-8849. e-mail: sherwood.brown@utsouthwestern.edu.

Copyright © 2006 The Academy of Psychosomatic Medicine

Major depressive disorder (MDD) is a severe, disabling, and recurrent medical condition. It is also a costly illness, with health and disability costs comparable to those of heart disease, diabetes, and back pain. The economic consequences appear to increase in patients with comorbid medical conditions. Although depression is frequently thought of as a consequence of medical illnesses, the relationship is complex and varies between illnesses. For example, MDD largely appears to begin before the onset of coronary artery disease and Type II diabetes mellitus, and, thus, may be a risk factor for, rather than a consequence of, these medical conditions.

Asthma is a chronic disease affecting over 100 million people globally and more than 7% of the United States population in the year 2000. This figure reflects an increase of 75% from 1980 to 1994. Half of all patients with asthma are diagnosed by age 6.

Depression is common in patients with asthma. Brown et al. found a 25% prevalence of current MDD in outpatients with moderate-to-severe asthma. When depression is present in asthma patients, it is associated with decreased physical functioning and, possibly, to increased asthma-related mortality.

MDD, unlike asthma, which often has an onset in childhood, generally begins in adulthood. Therefore, one might predict that the onset of asthma, unlike coronary artery disease and Type II diabetes, would precede the onset of depression in those having both conditions. However, this question, to our knowledge, has not been addressed. Our goal was to compare the onset of both asthma and depression in a sample of patients with both conditions.

METHOD

We collected data from a group of 85 participants in a placebo-controlled trial of citalopram in patients with both current MDD and asthma. The results of this clinical trial, including detailed experimental procedures, are published elsewhere. Participants were recruited through assessment
by a research assistant at UT Southwestern-affiliated asthma clinics and emergency rooms and through telephone screenings generated by flyers and advertising. Depression was chronic in many participants, with a mean duration of 55.2 months (standard deviation [SD]: 72.8) at study entry. Asthma, in many cases, was severe, with 33% of subjects having received oral corticosteroids in the previous year, with a mean of over two emergency room visits in the previous year. All participants gave written informed consent, using procedures approved by the UT Southwestern Institutional Review Board and were given information about the aims of the clinical trial, the randomization process, risks and benefits of participation, and alternatives to participation. Participants were not given information about literature on age at onset of depression or asthma.

The data presented in this article were obtained as part of an extensive baseline evaluation. Inclusion criteria included age from 18 to 65 years, physician diagnosis of asthma and current asthma-medication use, a current diagnosis of a major depressive episode on the Mini-International Neuropsychiatric Interview (MINI),10 a brief structured diagnostic interview designed to determine current and lifetime psychiatric disorders on the basis of DSM-IV criteria, and a score of ≥17 on the Hamilton Rating Scale for Depression (Ham-D),11 a widely used, clinician-rated measure of depressive symptom severity. The MINI and Ham-D were administered by a research assistant with formal training in the use of both instruments. Diagnoses were, in all cases, confirmed through a clinical interview conducted by a psychiatrist. Exclusion criteria included current substance abuse, psychosis, high suicide risk, severe cognitive impairment, pregnancy/nursing, and a history of treatment-resistant MDD, defined as a non-response to two previous trials of antidepressants at adequate dosages. Thus, the sample consisted of outpatients with at least moderately severe symptoms of current MDD that was not treatment-refractory.

In addition to demographic and other information, ages at onset of asthma and MDD were obtained through a participant interview asking: “Age at asthma diagnosis” and “Age at first depressive episode.” Complete and usable answers to these questions were collected in 85 of 90 participants. Means and SDs were calculated with SPSS Version 12 software.

RESULTS

Of the 85 participants, 69 were women, and 16 were men. Mean age of the participants was 41.2 years (SD: 10.5; range: 18–62); 57% were Hispanic, 34% African American, 8% Caucasian, and 1% from other ethnic or racial groups. Approximately 60% earned less than $15,000 annually.

The mean age at asthma diagnosis was 21.0 years (SD: 16.5); for women, the mean was 22.8 years (SD: 15.8); for men, the mean was 12.9 years (SD: 17.9). Mean age at the first depressive episode was 28.8 years (SD: 12.4); for women: mean, 29.5 years (SD: 12.9); for men: mean, 26.2 years (SD: 9.9). Asthma preceded the onset of the first depressive episode in 62% of the participants (N = 53 of 85); depression preceded asthma in 24% (N = 20), and both occurred at the same age in 14% of participants (N = 12). Clinical and demographic characteristics were similar in those with depression onset before asthma diagnosis and those with asthma diagnosis prior to depression onset.

DISCUSSION

Asthma onset occurred before depression in the majority of cases. Unlike coronary artery disease and Type II diabetes, where MDD generally occurs before these illnesses, in asthma patients, MDD generally developed after the medical illness. The generally later onset of MDD than asthma in our sample suggests at least two possible explanations: First, the MDD may be a consequence of the asthma or asthma-related disability. Second, the two disorders may be related through other mechanisms (e.g., common genetics). Thus, the presence of asthma might increase vulnerability to depression, but not as a direct manifestation of asthma symptoms. It is important to note, however, that a substantial number of participants reported depression onset before asthma, and some participants reported that the onset of depression and asthma occurred at the same time. In 14% of the participants, the two illnesses appeared to have an onset at the same age. The mean age at onset for asthma was younger in men than women. However, this finding is consistent with other reports.5 The majority of participants were women, which reflects the patients at our referral sources. Nationwide, 58% of asthma patients are women.6

There were limitations to our study. First, we relied on participant self-report for age at onset for asthma and MDD. The interview technique and instrument used for the diagnosis of psychiatric illnesses is lengthy and is a method commonly used in research settings. However, it is limited by patient recall over time. It is possible that asthma was diagnosed earlier than MDD because of its more easily-observable symptoms. This potential bias may be unlikely
Asthma and Depression Onset

because depression onset was defined by patient self-report and not age at diagnosis, whereas asthma onset was defined by age at diagnosis, and not onset of symptoms that should lower, rather than raise the age at onset of depression relative to asthma. Second, our sample consisted primarily of low-income, inner-city persons from minority ethnic and racial groups. Although this is an important population for research, because of their apparent high risk for asthma-related morbidity and mortality, these findings may not be representative of asthma in the general population. Third, patients were questioned regarding the age at diagnosis of asthma, not the onset of asthma symptoms. A diagnosis of asthma may be delayed by years from the onset of symptoms and hence the reported onset of the disease. If asthma symptoms began earlier than the time of physician diagnosis, this would increase, rather than decrease, the proportion with asthma before MDD onset, and would not change our conclusions. Fourth, our sample size was relatively modest. An alternative method would be to obtain data on a very large sample by use of a brief health survey or records from large databases. These approaches would have the advantage of providing a larger sample size. However, MDD can be difficult to diagnose. Thus, our approach of using a lengthy diagnostic interview and confirmation by a psychiatrist should lead to a more accurate assessment for the presence of MDD and its time of onset. Fifth, we may have introduced some selection bias by only including persons with current MDD and excluding those with treatment-resistant MDD. However, no participants assessed for the clinical trial were excluded because of a history of treatment-refractory MDD.

CONCLUSION

Unlike some other chronic medical illnesses, depression in asthma patients generally begins after the onset of asthma. Thus, depression appears to have complex and different relationships with different medical illnesses. Additional research is needed to determine what factors increase the risk of the development of subsequent depression in asthma patients. This research would be of great benefit in a population where chronic illness is often coupled with depression.

This work was funded by NIH grant MH-63133 to Dr. Brown.

References