High Incidence of Acute Myositis with Type A Influenza Virus Infection in the Elderly

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Abstract

We describe six elderly cases of acute myositis with type A influenza virus infection (Sydney) during the 1998–1999 outbreak. All six cases suffered from myalgia or muscle weakness especially in the lower extremities and the serum creatine kinase (CK) values were elevated above 1,000 IU/l without MB isoenzymes or electrocardiogram abnormalities. There have been a few case reports of acute myositis associated with influenza virus infection in the elderly. However, we noticed a high incidence of acute myositis among elderly patients with type A influenza virus infection. This complication may occur more commonly in elderly patients than has previously been thought.

Key words: outbreak, creatine kinase

Introduction

Acute myositis has been recognized as a complication of influenza virus infection during epidemics. It often affects children recovering from acute illness and is characterized by muscle pain or tenderness, particularly in the calves and may cause gait disturbance for several days (1, 2). In adults, symptoms occur much less commonly and vary from simple myalgia to severe myoglobinuria (3). In the elderly, there have been only a few case reports of acute myositis resulting from influenza infection (4–6). Clinical features or the incidence of muscle complications has not been clarified specifically for the elderly. Last winter, we experienced the epidemic of type A influenza Hong Kong/H3N2/Sydney infection and noticed that some elderly patients had muscle deterioration associated with influenza. The present paper describes the clinical aspects of acute myositis patients with influenza infection and the incidence of muscle complication in the elderly.

Case Report

From December 1998 to February 1999, 45 elderly patients (16 males, 29 females, mean age 80.5 years old, range: 65–103 years) with acute onset of fever, cough, headache and malaise were diagnosed with type A influenza virus infection by the use of Directigen FLU-A (Becton Dickinson Microbiology Systems, Cockeysville, MD), which is a technique for rapid direct detection and identification of type A influenza antigens in upper respiratory secretion (7). Out of the 45, six cases developed acute myositis. The most typical case is detailed below and the other cases are presented in Table 1, because the clinical courses were very similar to this case.

Case 1

An 86-year-old woman with a medical history of hyperthyroidism was admitted to our hospital on January 15, 1999 because of cough and weakness in the upper and lower extremities. Two days before admission, she had cough and sore throat. Her husband and sons had also recently had flu-like illness. Physical examination revealed temperature of 38.6°C, blood pressure 120/78 mmHg and heart rate 84/min. There was pharyngeal swelling, but no abnormalities in the skin, chest or abdomen. There was diffuse bilateral upper and lower limb weakness which was severe proximally. Her neck flexion strength were also marked disturbed. She could not stand or walk. Myalgia was not observed in the upper and lower extremities. Sensation and tendon reflexes were normal. Laboratory data disclosed the following values: white blood cell count, 14,600/mm³; hemoglobin, 16.1g/dl; hematocrit, 47.4%; platelet count, 162,000/mm³; blood urea nitrogen, 17.0 mg/dl; creatinine, 0.6 mg/dl; creatine kinase, 9,829 IU/l (normal range,<40–180 IU/l); lactate dehydrogenase, 664 IU/l; aspartate aminotransferase, 148 IU/l; alanine aminotransferase, 47 IU/l; alkaline phosphatase 273 IU/l; and γ-glutamyltranspeptidase 22 IU/l. Radiographs of the chest and electrocardiograms were normal. This case was diagnosed with type A influenza virus infection by the use of Directigen FLU-A, a technique for the rapid direct detection and identification of type A influenza antigens in upper respiratory secretion (7). Her limb weakness
Table 1. Characteristics of Six Patients with Influenza-associated Acute Myositis during the 1998–1999 Influenza Outbreak

<table>
<thead>
<tr>
<th>Case no.</th>
<th>Age (y)/sex</th>
<th>Muscle symptoms</th>
<th>Serum HI antibody titer to A/Sydney/H3N2 virus</th>
<th>Peak CK (IU/l)</th>
<th>Time from fever onset to peak CK (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>82/F</td>
<td>Muscle weakness</td>
<td>ND</td>
<td>ND</td>
<td>2,405</td>
</tr>
<tr>
<td>2</td>
<td>75/F</td>
<td>Myalgia</td>
<td>ND</td>
<td>ND</td>
<td>1,198</td>
</tr>
<tr>
<td>3</td>
<td>70/F</td>
<td>Myalgia and weakness</td>
<td>ND</td>
<td>ND</td>
<td>4,432</td>
</tr>
<tr>
<td>4</td>
<td>86/F</td>
<td>Muscle weakness</td>
<td>64</td>
<td>1,024</td>
<td>9,829</td>
</tr>
<tr>
<td>5</td>
<td>78/F</td>
<td>Myalgia and weakness</td>
<td>16</td>
<td>128</td>
<td>25,823</td>
</tr>
<tr>
<td>6</td>
<td>76/F</td>
<td>Muscle weakness</td>
<td>16</td>
<td>1,024</td>
<td>1,138</td>
</tr>
</tbody>
</table>

Conv: convalescent, HI: hemagglutinin inhibition, ND: not done.

improved from distal secondary to proximal muscles and the level of abnormal muscle enzymes decreased gradually and became normalized over several weeks.

**Cases 2–6**

Five strikingly similar cases followed case 1 between December 1998 and February 1999. These cases were also diagnosed with type A influenza virus infection by the use of Directigen FLU-A. Selected features in the 6 cases (including case 1) are shown in Table 1. Myalgia was observed in 3 cases.

**Discussion**

From December 1998 to February 1999, 45 elderly patients with acute onset of fever, cough, headache and malaise were diagnosed with type A influenza virus infection. Out of these 45, six cases (13.3%) developed acute myositis characterized by myalgia or muscle weakness especially in the lower extremities, and elevation of the serum CK values above 1,000 IU/l. These muscle symptoms appeared at the acute phase of fever, not at the convalescent phase. CK values reached peak levels within three days after the onset of fever. Four cases out of the 6 were unable to walk on admission. None of them had cardiac diseases, previous muscle disorders, or any family history of muscle disorders. Renal dysfunction was not observed. In all 6 cases, laboratory abnormalities were resolved within several days. All patients recovered without any complications. There was no relationship between the CK values and the duration of myopathy. The occurrence of myositis at the acute phase of fever, not at the convalescent phase may suggest a direct viral invasion of the muscle.

Here, the incidence of acute myositis with influenza virus infection in the elderly was 13.3%. Acute myositis in the elderly might be a more common feature of the influenza syndrome than has been thought in the past. Since the Hong Kong/H3N2/Sydney strain was the epidemic in 1998–1999, this strain may have a special affinity to muscular tissue.

**References**