Autonomic Symptoms at Baseline and Following Infectious Mononucleosis in a Prospective Cohort of Adolescents

Chronic fatigue syndrome (CFS) is a complex condition involving fatigue and musculoskeletal and cognitive symptoms. Six, 12, and 24 months following monospot-positive acute infectious mononucleosis (IM), 13%, 7%, and 4%, respectively, of adolescents met criteria for CFS. As part of their evaluation at baseline and 6, 12, and 24 months following IM, adolescents diagnosed with CFS and recovered controls completed questionnaires regarding autonomic symptoms.

Methods. We enrolled adolescents in the Chicago, Illinois, area with monospot-positive acute IM, as previously described. All case patients with CFS and recovered controls completed the Autonomic Symptoms Checklist–Patient Version (ASC) at baseline and 6, 12, and 24 months following the diagnosis of IM. The ASC was adapted from the Autonomic Symptom Profile, has been validated for CFS, and has been used down to age 12 years. Scoring was decided a priori; items were graded from 0 to 7 and then weighted from 1 to 4. The t test evaluated the differences between autonomic symptoms at baseline and 6, 12, and 24 months following IM in case patients and recovered controls.

Results. Thirty-eight of 39 adolescents diagnosed with CFS at baseline, 34 of 39 diagnosed with CFS 6 months following IM, 20 of 22 diagnosed with CFS at 12 months, and all 13 diagnosed with CFS at 24 months, along with 50 fully recovered controls at baseline, 49 controls 6 months following IM, 59 controls 12 months following IM, and 62 controls 24 months following IM, completed the ASC. Baseline was a median of 2 months following the diagnosis of IM (ranges: <1 month to 6 months for cases). Four cases were male, as were 12 recovered controls.

There was no difference between cases and controls who did and did not complete the ASC in age, socioeconomic status, body mass index, and modifiable activity questionnaire responses. Adolescents diagnosed with CFS and recovered controls did not differ significantly in age, weight, or body mass index. As an example, the range of ASC scores at 24 months for the patients with CFS was 4.76 to 43.73. The ASC scores at baseline and 6, 12, and 24 months following IM in subjects diagnosed with CFS were always statistically significantly higher compared with the ASC scores of the recovered controls (Table).

Comment. Adolescents with CFS 6 months following IM had many more autonomic symptoms than recovered controls, even at baseline (Table). Our data are consistent with those seen in adults and can be explained in at least 2 ways: (1) Adolescents destined to develop CFS following IM have a preillness disposition to autonomic dysfunction. (2) Adolescents who developed CFS had worse IM (as is true for adults), as evidenced by worse autonomic symptoms. The data we collected as part of this study do not allow us to differentiate between these 2 possibilities.

The strength of our study is that a difference in reported autonomic symptoms was seen as early as a median of 2 months following the diagnosis of IM, making it unlikely that prolonged inactivity is the explanation. Perhaps our data will aid in developing a screening test for adolescents at risk for CFS following IM and lead to preemptive therapy for preventing CFS in at-risk patients.

Table. Autonomic Symptom Score at Baseline and 6, 12, and 24 Months Following IM Among Patients With CFS and Recovered Controls

<table>
<thead>
<tr>
<th></th>
<th>CFS Cases</th>
<th></th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of</td>
<td>Mean (SD)</td>
<td>No. of</td>
</tr>
<tr>
<td></td>
<td>Subjects</td>
<td>Score</td>
<td>Subjects</td>
</tr>
<tr>
<td>Baseline</td>
<td>38</td>
<td>23.63 (9.80)</td>
<td>50</td>
</tr>
<tr>
<td>6 mo</td>
<td>34</td>
<td>19.63 (9.38)</td>
<td>49</td>
</tr>
<tr>
<td>12 mo</td>
<td>20</td>
<td>14.47 (8.75)</td>
<td>59</td>
</tr>
<tr>
<td>24 mo</td>
<td>13</td>
<td>22.72 (10.54)</td>
<td>62</td>
</tr>
</tbody>
</table>

Abbreviations: CFS, chronic fatigue syndrome; IM, infectious mononucleosis.

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Author Contributions: Drs Katz, Stewart, and Shiraishi had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: Katz, Stewart, and Taylor. Acquisition of data: Katz, Shiraishi, Mears, and Taylor. Analysis and interpretation of data: Katz, Stewart, and Taylor. Drafting of the manuscript: Katz and Shiraishi. Critical revision of the manuscript for important intellectual content: Katz, Stewart, Mears, and Taylor. Statistical analysis: Taylor. Obtained funding: Taylor. Administrative, technical, and material support: Katz, Stewart, Shiraishi, Mears, and Taylor. Study supervision: Katz, Mears, and Taylor.

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