Acute respiratory infection (ARI) is the commonest cause of illness in children. With the development of rapid viral diagnostic technologies and the availability of effective antiviral therapy, community physicians will be able to make more accurate treatment decisions and reduce unnecessary antibiotic usage. The procedure commonly used for specimen collection in the diagnosis of viral ARI is a painful and unpleasant nasopharyngeal swab or aspirate, and a relatively painless alternative would certainly be desirable.

In a recent study, investigators showed that nasal swabs are as effective as nasopharyngeal aspirates for the rapid diagnosis of influenza in children. However, no previous study to date has examined the pain and discomfort associated with obtaining such specimens.

**PARTICIPANTS, METHODS, AND RESULTS**

The study was conducted between November 1999 and March 2000 in a paediatric community based office practice and at the Hospital for Sick Children, Toronto, Canada. Paired lower nasal swabs (LNS) and high nasopharyngeal swabs (NPS) were obtained from each of 199 children with a median age of 1.5 years (range 11 days to 13.8 years), presenting with acute ARI. For LNS a cotton tipped swab was placed 1.0–1.5 cm into the nostril and rotated three or four times. For NPS, the swab was inserted 5.0–6.0 cm in the opposite nostril and the rotation procedure repeated. Swabs were submitted in transport medium for rapid diagnosis of influenza and respiratory syncytial virus (RSV) by direct immunofluorescence microscopy (DFA) using monoclonal antibodies (Light Diagnostics, Temecula, California), and by an influenza specific enzyme immunoassay (EIA; Directigen, Becton, Dickinson & Co.). Discomfort with each procedure was assessed in a subset of children. For those less than 3 years of age, cry duration was measured. The concordance of nasal compared with nasopharyngeal swabs was assessed for the diagnosis of respiratory viral infections, and the degree of discomfort associated with each procedure was compared. The use of nasal swabs was shown to be as accurate but significantly less painful than nasopharyngeal swabs for virus diagnosis.

<table>
<thead>
<tr>
<th>Pain variable</th>
<th>Lower nasal swab</th>
<th>Nasopharyngeal swab</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cry duration, seconds</td>
<td>25</td>
<td>5</td>
<td>0–55</td>
</tr>
<tr>
<td>Oucher score</td>
<td>12</td>
<td>13</td>
<td>0–80</td>
</tr>
<tr>
<td>Child facial coding system</td>
<td>14</td>
<td>10</td>
<td>0–50</td>
</tr>
</tbody>
</table>

Table 2. Pain scores, lower nasal swab versus nasopharyngeal swab

**Table 1. Virus identification by direct immunofluorescence microscopy, lower nasal swab versus nasopharyngeal swab**

<table>
<thead>
<tr>
<th>Lower nasal swab</th>
<th>Nasopharyngeal swab</th>
<th>Influenza</th>
<th>RSV</th>
<th>Neither</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td>49</td>
<td>0</td>
<td>5</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>RSV</td>
<td>0</td>
<td>35</td>
<td>4</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Neither</td>
<td>8</td>
<td>4</td>
<td>94</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>39</td>
<td>103</td>
<td>199</td>
<td></td>
</tr>
</tbody>
</table>

**Abbreviations:** ARI, acute respiratory infection; DFA, direct immunofluorescence microscopy; EIA, enzyme immunoassay; LNS, lower nasal swab; NPS, high nasopharyngeal swab; RSV, respiratory syncytial virus
ACKNOWLEDGEMENTS

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References


ARCHIVIST

Tailoring treatment for retinoblastoma

Primary chemotherapy is more effective in retinoblastoma tumours in the macula and if children are over 2 months old, according to a study by at the Ocular Oncology Service at St Bartholomew’s and Moorfields Hospitals, London, UK.

Noting that primary chemotherapy produced varying outcomes in their patients, Gombos et al examined individual tumour features—basal size and location, previously rather overlooked—and patient age at diagnosis to see whether they predicted outcome. Their retrospective review was confined to 36 children receiving chemotherapy alone and followed up for one year minimum (range 12–44 months). Half were boys, 10 had familial retinoblastoma, and eight sporadic retinoblastoma. Within 42 eyes were 78 tumour foci: 31 (40%) in the macula, 38 (50%) in the equatorial region, and eight (10%) in the anterior ora region; 56 (72%) responded to chemotherapy alone; 22 (28%) needed other treatment.

Chemotherapy was most successful for macular tumours, tumours >2 mm across, sporadic tumours, and for children over 2 years at diagnosis, logistic regression showed. This was true for macular tumours when age—a confounder linked with tumour size and inheritance—was accounted for. Further analysis confirmed age >2 months and macular site as independently linked to favourable treatment outcome, but the relation with tumour size was less clear.

These insights allow treatment to be better tailored at diagnosis. Macular foci probably do not need adjuvant thermotherapy; tumours <2 mm across demand careful regular checks. In view of the small numbers, poor outcome in very young children deserves further study.