Office-based research: What is the incidence of mumps related hearing loss?

Abstract

1. The purpose of this study is to determine the incidence of mumps related hearing loss.

- The incidence of mumps related hearing loss was considered 1 / 15,000-1 / 20,000 cases, but recent reports suggest that the incidence might be higher.
- We prospectively investigated the hearing ability of the children with mumps.
- The study was conducted by 40 pediatric outpatient clinics of which the doctors, mainly pediatric practitioners, were the members of Kinki Ambulatory Pediatrics Study Group (KAPSG).
- In Japan, children are not routinely immunized against mumps (only MR vaccine is used).

2. The results indicate that mumps related hearing loss occurred in 7 of 7,403 patients (≈ 1 / 1,000).

- It should be all the more important to enlighten the public and health professionals about the risk of mumps related hearing loss and the need for vaccination.

Background

- "Unilateral, rarely bilateral, nerve deafness may occur, although the incidence is low (1 / 15,000 cases)" (Nelson, 2004, 17th Edition).
- Recent reports in Japan show 1 / 100-300 cases.

Methods

- In 40 pediatric outpatient clinics (38 private clinics and 2 hospitals), patients with mumps were examined between Jan. 2004 and Dec. 2006.
- Some patients do not consult a doctor as mumps related hearing loss.
- Inapparent infection (30-40%).
- Mumps is usually mild.

Results

- All the mumps cases ≤ 20 years old from Jan. 2004 to Dec. 2006 were eligible for this study.

- In 7,403 cases, we were able to perform hearing ability assessment after the mumps onset.

- Seven cases were diagnosed with new onset hearing loss (diagnosed as mumps related hearing loss).

- The incidence is 7 / 7,403 = 1 / 1,000.

- In these 7 cases, none had been previously vaccinated against mumps virus.
- Hearing loss was severe and did not resolve for any cases.
- No cases of mild hearing loss were found.

- We were able to follow 102 cases.

Discussion

- The exact incidence of mumps related hearing loss is difficult to confirm. Because:

  1. The accurate number of mumps cases is uncertain.
  2. The accurate number of mumps related hearing loss is uncertain, too.

- Inapparent infection is not rare (30-40%).
- Many patients with hearing problems consult an otolaryngologist but not a pediatrician.
- Many patients with mumps related hearing loss tend to consult many doctors due to lack of the effective treatment.

Conclusions

- The incidence of hearing loss in children due to mumps is higher than has been previously considered.
- The danger of mumps related hearing loss is not well known in public. This ignorance, together with other reasons, leads to the low rate of mumps vaccination in Japan.

References

- Everberg. Acta Otolaryngol 48, 397, 1957
- Everberg (1991) 1 / 20,000 *1 survey for 10 years in Copenhagen
- Aoyagi (1996) 5 / 1,470 (0.34%)*2 survey of an area (Naka county, Wakayama
- Ishimaru (1985) 3 / 1,551 (0.2%) 3 year experience at an office

Calculations Methods of the incidence of mumps related hearing loss

- The detected number of patients with mumps related hearing loss
  - 1 / Everberg (1991) = 1 / 20,000 mumps patients
  - 2 / A retrospective study by Aoyagi (1996) = 5 / 1,470 = 1 / 300 mumps patients

Table: patients with mumps related hearing loss found in our survey

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<tr>
<th>Age</th>
<th>Sex</th>
<th>Hearing loss</th>
<th>Vertigo</th>
<th>Tinnitus</th>
<th>Age</th>
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Table: Age and Immunization Status of Mumps Patients

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<tr>
<td>2</td>
<td>1 / 20,000</td>
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Figure 1: participants with mumps related hearing loss study

Figure 2: Age and Immunization Status of Mumps Patients

http://www.reasoning.org/~clinic/mumps/
E-mail: hiromi@reasoning.org