Original Article

Aetiology and Hearing Status of Children under 12 years in a School for Hearing Impaired

Abu Naser Md. Jamil¹, Kamrul Hassan Tarafder², Mohammad Wakilur Rahman³, Raju Barua⁴, Naseem Yesmin⁵, Farzana Haque⁶

Abstract

Objective: To assess degree, type and cause of hearing loss in children under 12 years of age in preschool for hearing impaired children.

Methods: This cross sectional study was carried out in children of integrated preschool for hearing impaired children (IPSIFIC) of SAHIC, Mohakhali, Dhaka, from September 2010 to March 2011. 50 deaf children were included with age 3-12 years and clinically detected hearing impairment. Data were collected by detailed history, clinical examination and audiometric findings and result were expressed in table form.

Results: Most of the children presented with bilateral profound hearing loss and majority of patients presented with sensorineural type of hearing loss. Family history positive in 36% cases and consanguineous marriage were found in 34%.Commonest causes of deafness was infection.

Conclusion: Early detection with universal neonatal screening should be practiced in our country and early rehabilitation reveals better outcome.

Key Words: Hearing impaired children, Integrated preschool.

Introduction

Childhood deafness is still a special problem in our country in terms of assessment and rehabilitation. A deaf child cannot speak or develop speech as he or she cannot hear. Speech and hearing are closely integrated. Children do not complain of impaired hearing and even parents and careers are known to be unaware of the deficit in at least 30% of affected children¹.

A partially hearing child may have defective speech and perform poor in school and be leveled as mentally retarded. So early identification of hearing loss is desirable to optimize rehabilitation.

In the developing world, the greater proportion of childhood hearing loss is caused by
infection. In the developed world, about half of children with permanent childhood hearing impairment have a genetic cause for their deafness\(^2\).

Hearing loss in a child may be present at birth (congenital) or may develop after birth (acquired). The prevalence of permanent childhood hearing impairment (PCHI) increases with age, suggesting that a further one in 1000 children develop acquired or progressive hearing impairment\(^4\). Consanguinity contributes to the raised prevalence of deafness which was evident in a study among the British Bangladeshi population\(^5\).

In nearly half of children with permanent hearing impairment the cause is genetic\(^6\). Of the genetic causes of hearing loss, syndromic form of deafness accounts for 30% and non-syndromic hearing loss accounts for nearly 70% causes\(^7\).

About 60% of congenital bilateral permanent hearing loss is associated with one or more of the following risk factor: history of treatment in the neonatal ICU for more than 48 hours, family history of early childhood deafness and craniofacial anomaly (cleft palate)\(^11\).

Earlier detection with universal neonatal screening is now practiced in developed countries. Advances in detection, genetics, imaging and treatment including amplification and cochlear implantation – for these children have meant that new guideline and way of working are needed for health care professionals.

**Methods**

This cross sectional study was carried out in hearing impaired children of integrated preschool for hearing impaired children (IPSHIC) of SAHIC, Mohakhali, Dhaka, from September 2010 to March 2011.

**Inclusion Criteria:** Age 3-12 years child having history of suggestive deafness and clinically detected hearing impairment.

**Exclusion Criteria:** Age <3 years and >12 years

Data were collected by detailed history, clinical examination and audiometric findings and result were expressed in table form.

**Result**

**Table-I**

| Degree of hearing loss | No of patient | Percent |
|------------------------|---------------|---------|
| Profound (>80 db)      | 00            | 46      | 92      |
| Severe (61-80 db)      | 00            | 04      | 08      |

**Table-II**

| Type of deafness | No. of patients | Percentage (%) |
|------------------|-----------------|----------------|
| Sensorineural    | 39              | 78             |
| Mixed            | 11              | 22             |

**Table-III**

| Family history of deafness | Number of patients | Percentage (%) |
|----------------------------|--------------------|----------------|
| Positive                   | 18                 | 36             |
| Negative                   | 32                 | 64             |

**Table-IV**

| Type of marriage | Number of Percentage patients |
|------------------|-------------------------------|
| Consanguineous   | 17                            | 34              |
| Outside relation | 33                            | 66              |
Table-V
Aetiology of deafness

| Age group (years) | Number of patients | Percentage (%) |
|------------------|-------------------|---------------|
| Infection        | 19                | 38            |
| Low birth weight and prematurity | 07 | 14 |
| Birth asphyxia   | 07                | 14            |
| Neonatal jaundice | 03 | 6            |
| Birth trauma     | 02                | 4             |
| Ototoxic drugs   | 01                | 2             |
| Down’s syndrome  | 01                | 2             |
| Cerebral palsy   | 05                | 10            |
| Unknown          | 05                | 10            |

Discussion
In this study 50 deaf children aged below 12 years, were studied cross sectionally after taking relevant history, clinical examination and investigations.

In this study, 92% deaf children presented with bilateral profound hearing loss and 8% presented with bilateral severe hearing loss. 78% were bilateral sensorineural and 22% were bilateral mixed type hearing loss. The above results are consistent with findings of other series.12,16

This study reflected positive family history of deafness in 36% and consanguinal marriage in 34%, which was supported by the study Bajaj Y et al., who also found consanguinal marriage in 33%.

The identification of aetiological factors of deafness was mainly based on history from the patients. In this series, the aetiology of deafness were diverse. Main aetiological factor of deafness was infection (38%) which is supported by many other series.5,13,14,15,16 Other aetiological factors were birth asphyxia (14%), prematurity and low birth weight (14%), cerebral palsy (10%), neonatal jaundice (6%), trauma (4%), ototoxic drugs (2%), Down’s syndrome (2%) and undetermined (10%). More or less similar findings are noted in High care study.

The facts and figures mentioned here may vary from series to series, still then, as the cases were collected from a deaf school with limited period of time, this study may be of some value in reflecting certain facts regarding degree, type and aetiological factors of deafness among the deaf children.

Conclusion
Early detection with universal neonatal screening should be practiced in our country and early rehabilitation reveals better outcome. Prevention is only means to reduce the prevalence of congenital hearing impairment.

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