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## ANAESTHESIA FOR DEAF AND DUMB- CHALLENGES FOR ANAESTHESIOLOGIST

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### ABSTRACT

General Anaesthesia for Deaf and Dumb can be a challenging experience, even though after proper preoperative evaluation and good rapport building with the patient. We would like to emphasize on preoperative Rapport building and use of simple sign language ( in compliance with American sign language) for conduct of general anaesthesia safely and effectively.

**Key words:** Deaf, Dumb, General anaesthesia, Sign Language.

### INTRODUCTION

Anaesthesia for pediatrics is a challenging branch by itself and for a deaf and dumb child, anaesthesia needs a lot of preparation and planning. In the present day scenario patient centered anaesthesia is the norm of the day where preferences, needs and safety are customized to satisfy the patient. In special children these concerns become more complex as it is difficult to communicate and interact. There needs to be a team work between the anesthesiologist, surgeon, pediatrician treating the child, parents and sign language interpreters especially during recovery and pain management post operatively. We are presenting a case report of a deaf and dumb child posted for elective ear surgery.

### CASE REPORT

A 11 year old congenitally deaf and dumb female child, weight 35kgs, height 148cm, was posted for bilateral grommet insertion in her ears as she was having serous otitis media. Pre operatively child was evaluated, pediatricians provisionally diagnosed her as Down's syndrome and sent for gene mapping. Ophthalmologist diagnosed convergent squint. Echo



was normal. Other routine investigations were normal. Airway showed high arched palate, macroglossia, irregular dentition and Mallampatti was class 2.

Preoperative visit focused on educating and interacting with child and parents. Emphasis was on responding to a gentle tap on forehead for opening the eyes and other symptoms expressed by sign language as per American sign language. Child was taught to express pain by showing the Visual analog pain scale (VAS).

The child was reassured and a mock trial of the sign language was done to assess the understanding of the child. A 20 gauge Intravenous(IV) cannula was secured and Inj. Midazolam 1 milligram (mg) was given in the preoperative room. After shifting to the theatre, standard monitors ( ECG, NON Invasive BP, Pulse Oximeter ) was connected and a Half-Dextrose saline fluid was started.

The child was preoxygenated with 100 % oxygen, induced with Inj. Fentanyl 70 Micrograms, Inj. Thiopentone 150 mgs, intubated under Inj. Atracurium 20 mgs with a 6.5 millimeter (mm) cuffed endo tracheal tube, bilateral air entry confirmed and tube was fixed. Anaesthesia maintained with Oxygen, Nitrous oxide, Isoflurane and Atracurium. Additional monitoring included end tidal gas monitoring {Carbondioxide, Oxygen, Nitrous oxide and Isoflurane (MAC-Minimum alveolar concentration)}. Average heart rate was 80/minute and Blood pressure 100/60 mm of Mercury, and the operation lasted for 1 hour. Intraoperative period was uneventful. Neuromuscular blockade was reversed with Inj Neostigmine 1.75mgs and Inj. Glycopyrrolate 0.4 mg, and was extubated uneventfully. Pain was assessed by VAS and when it was more than 5, Inj Paracetamol IV 500mg was given. Postoperatively she was comfortable, shifted to postoperative ward.

## DISCUSSION

Very little literature is available for conduct of regular anaesthesia in a case of Deaf and Dumb patient. Anaesthetist, surgeon, paramedical staff have little training or experience in handling such special situations which include preoperative familiarization with the patient and his family parental presence is highly desirable during induction of anaesthesia. <sup>[1]</sup>

Syndromal illness have specific anaesthetic significance such as presence of difficult airway or prolonged QT interval. Several syndromes may be associated with congenital deafness and speech disorders like Treacher Collins syndrome ( Deformity of ears, eyes, maxilla and mandible), oculo-auricular-vertebral-dysplasia can be cause of difficult ventilation and



intubation.<sup>[2,3]</sup> Jervell and Lange-Nielsen's syndrome characterized by long QT interval, microcytic hypochromic anaemia and congenital deafness can have potential fatal arrhythmias under halothane anaesthesia.<sup>[4,5]</sup>

We would like to emphasize the use of sign language ( American sign language) in management of these cases , this can reduce fundamental misunderstandings while interacting with the patients.<sup>[6]</sup> In the Indian deaf population of 3.1million ,98% are illiterate thus sign language can be used effectively in deaf and dumb for any complex procedure which needs full patient co-operation and support thus felicitating successful outcome. BIS monitoring has been used in many case studies for assessing the anaesthetic requirement in these patients as compared to normal patients. They found out there is no significant difference. <sup>[7,8]</sup>

Use of nitrous oxide is documented in grommet insertion and is not an absolute contraindication in grommet insertion as it has a hole for drainage. <sup>[9]</sup> Use of reading lips, interpreters, medicolegal aspects of improper communication has been highlighted by Lisa I. Iezzoni and Bonnie L. <sup>[10]</sup> Use of alphabets in different languages, photographic signs and standard hand signs have been used to communicate with deaf and dumb people. <sup>[11]</sup>

In our case we gave importance to sign language, interaction with the parents and patient and use of Visual Analog scale for assessment of pain. We also took effort to make the patient understand the course of anaesthesia, surgery and recovery with the help of Sign Language.

## CONCLUSION

Deaf and hard of hearing face communication problems that could compromise several dimensions of health care quality. These may include patient safety, effectiveness and efficiency of treating specialists, risks of misdiagnosis, problems during surgery and anaesthesia. Effective Communication skills and building of good rapport is essential for safe, efficient and patient centered care.

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