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Tips for children's better cooperation during the examination of the head and neck: A Delphi method

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ABSTRACT

Objective: To obtain and rate tips for the head and neck examination in children.
Methods: A two-round Delphi method study was conducted to survey 13 practising paediatric otolaryngologists (PO) in North America and Europe to obtain tips on how to approach a 2- to 6-year-old child for head and neck examination. The tips were rated by the PO according to their frequency of utilization and usefulness on a scale of 1 (high) to 6 (low). One-sample Wilcoxon signed rank tests were used to evaluate each tip according to frequency of use and success rate. "Top Tips" were identified when both their Wilcoxon p-values were still significant, after a Bonferroni correction. An exact chi-square test for equality of proportions was used to determine the age groups for which satisfactory tips are to be favoured.
Results: The panellists rated forty-three tips. Seven tips obtained a p-value ≤0.001 for the frequency of use and usefulness in all age groups with an emphasis on the initial moments: eye contact, mood assessment, approach behaviour and strategy. Six more tips proved to be satisfactory for specific age groups without reaching the top tip significance level.
Conclusions: Seven tips to approach a 2- to 6-year-old child reached a top consensus between the experts. Initial eye contact with the child and mood assessment are essential for a satisfactory outcome. The use of a gentle approach with explanation of each step of the physical exam and avoidance of pain are also important.

1. Introduction

The head and neck examination represents a challenge for the medical students and practitioners. The ear, nose and mouth cavities are dark and restricted cavities that require proper lighting and the mastering of dilating instruments for a good examination. The following factors [1] contribute to the augmented challenge in children's head and neck examinations: 1. Closeness of the examiner to the eyes and face of the patient (versus examination of other parts of the body); 2. Use of a headlight and other unfriendly equipment; 3. Use of more invasive equipment such as an ear curette; 4. Higher psychosocial impact of disease because of the child's cognitive and affective immaturity [2] 5. Presence of the caregiver(s) with his (their) emotional responses [2]; 6. Previous unpleasant or painful experience(s); 7. Presence of other disabilities such as hearing loss or mental disorders; 8. Daunting effect of multiple examinations within a teaching hospital, and; 9. Required technical and social paediatric-specific abilities from the examiner. Because of anxiety and fear, the child may respond passively or actively [3].

From the examiner's standpoint, a quiet and pleasant environment allows better concentration for an easier medical history taking and physical examination. In eye physiology, Lockhart and Shi [4] have shown that age has a slowing effect on dynamic eye accommodation. When the child is straining, the associated eardrum vasodilatation may be deleterious to the accuracy of the ear examination. A moving child is at risk of injury with the instruments and is likely to be even more uncooperative in the future.

The objective of this study is to obtain a list of practical tips and rate them to help all medical students and physicians dealing with the 2- to 6-year-old children for the head and neck examination. A group of experts was surveyed about 1. Their office setting; and 2. The techniques they use to obtain better cooperation and reduce anxiety.

2. Methods

The study protocol was approved by the Centre Hospitalier Universitaire de Québec Institutional Review Board in June 2014.

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2.1. Delphi method

The Delphi method developed by the RAND Corporation [5] is a structured process used to obtain a consensus from a group of experts on a topic for which standard research is not easily feasible. This group facilitation technique proceeds with a sequence of questionnaires sent back and forth to the participants until consensus is reached.

2.2. Focus group

For the preparation of the questionnaires, we consulted three local academic paediatricians and two otolaryngologists to help us determine the design, the format and details of the questionnaires.

2.3. Experts

We contacted experts from three different countries that worked using one of two languages: English and French. In Canada, most of the experts were members of the Canadian Society of Otolaryngology Head & Neck Paediatric group and were approached at the 2014 annual meeting of the society by the senior author (JEL). Two paediatric otolaryngology colleagues from France and two from United States were also contacted by email for the study. To compensate for possible withdrawals, 18 experts were included for this exploratory study.

2.4. Questionnaire 1

All questionnaires were sent by e-mail. The first questionnaire included specific information about the participant, his practice habits and clinic setup such as gender, age group, size of the city, office decoration, attire, effect of lab coat, nursing staff and use of rewards for children. In a second part, we asked the experts, through an open-ended question, to share with the group some tips on how they approach 2- to 6-year-old children in the clinic. At the end of both questionnaires, the experts had the opportunity to express personal comments.

2.5. Questionnaire 2

The second questionnaire was built from the answers obtained in the first round. The tips were grouped under one of two headings: general or specific tips. For each suggested tip, the experts were asked 1. How often they used the tip; 2. For what age group (2–3, 3–4, 4–5 and 5–6 years old); 3. The estimated value/success rate. The frequency of use and the estimated value were graded from 1 (top) to 6 (no) and a rating grade of 7 was for an absence of opinion. A rating of 4 for both questions respectively meant: a tip rarely used and of average value.

2.6. Statistical method

For the first questionnaire, the repartition of practice environment characteristics and habits were evaluated with a test of equality of proportions. Because of the small sample size, the exact chi-square test was used. To evaluate the tips in the second questionnaire, the one-sample Wilcoxon signed rank test was used for the frequency of utilization and estimated value (success rate) outcomes, to verify whether the median rating for each tip was statistically different from 3.5 (null value). The value 7 (other – no opinion) was considered as a missing value and therefore was excluded in the analysis. Tips were defined as "Top Tips" when both their Wilcoxon p-values were still significant, after a Bonferroni correction to compensate for the elevated number of studied tips ($p < 0.001$).

In the second part, using only the tips that were significant at a 5% level for both Wilcoxon tests, we focused on the tips in relation to specific age groups. The proportion of responders thinking that the tip should be used for all age groups from 2 to 6 years old was tested using an exact chi-square test for equality of proportions. For the tips where the proportion was not above 50% and significant, the same test was executed separately for each age group to determine for whom the tips were the most appropriate. Exact 95% confidence intervals were estimated for proportions. Tests were two-sided and a p-value of 5% was considered significant unless stated otherwise. All statistical analyses were performed with the SAS software (version 9.3; SAS Institute, Cary, NC).

3. Results

Of the 18 panellists who initially accepted to participate, 13 completed the two-round study. Eleven males and two females represented nearly all age groups (Fig. 1). The mean and median numbers of years in practice were, respectively, 18.8 and 20.0 years for our all-Caucasian group of practitioners. The language was English for 8 Canadian experts (62%). Two out of five French-speaking panellists were from France and the other three were French Canadians. Three Canadian and two American colleagues (28%) were lost to follow-up: four before and one after the first round. No reason was obtained for their non-response.

The survey results on office set up and doctor's attire are shown in Fig. 1. The presence of paediatric items in the decoration was felt to be helpful in dealing with children (exact chi-squared $p = 0.001$). The use of a lab coat was considered detrimental when encountering the child (exact chi-squared $p = 0.027$). No statistically significant effect was associated with the presence of nursing staff (exact chi-squared $p = 0.186$). Ninety-two percent of the panellists (CI: 64–100%) used rewards in one way or another and stickers were the most commonly used items. All the experts said that they did not change their approach according to the young patient's cultural background. However, one expert added: "I make a concerted effort to relate to each child individually and if this involves talking about their religion or cultural background, then this is included as part of the discussion we have. I certainly don't shy away from it and am comfortable discussing it".

Fig. 2 summarizes our findings after the second round. All 13 experts evaluated forty-three tips. The median value rating of each tip and its associated p-value are presented with a colour code for the frequency of use and usefulness without looking at the age groups. The figure is designed to show the best tips at the top. We have identified seven top tips (underlined in Fig. 2) that have obtained a p-value lower than 0.001 (Bonferroni correction) in both categories and must be considered as the best rate (in decreasing rating order) : 1. Get a friendly eye contact with the child as soon as you see him; 2. Be calm, speak with a soft voice and avoid abrupt movements; 3. Explain each step of the physical exam to the child; 4. Before the physical exam, show the instruments to the child and let him touch; 5. Speak to the child first; 6. Avoid as much as possible inflicting any pain; 7. Quickly assess the child's mood and plan your strategy accordingly.

A majority of responders (between 85% (CI: 55–98%) and 92% (CI: 64–100%), significantly higher than half, $p < 0.05$) agreed that the seven top tips are to be favoured for children from 2 to 6 years old. Amongst all the tips that were satisfactory for frequency of utilization and success rate, six tips were not significantly thought to be applicable for all age groups. A majority of responders thought that five tips were for all age groups, without being significant, while one was significantly not considered for 2–6 years old. Each of these six tips was then found to be favoured in one or two specific age groups ($p < 0.02$). Due to a clerical mistake, the following tip provided by one expert was not included in the evaluation process: (General 23) keep the child close to his parents.