Document heading doi: 10.21276/apjhs.2018.5.3.33 **Original Article**

Reliability of Self-Reporting by Parents using Visual Analog Scale Scoring System in Non-Plastic Surgical Hospital Based Setting: An Analysis of Outcome in Cleft Lip and/or Palate Patients

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Received: 10-08-2018 / Revised: 25-09-2018 / Accepted: 28-10-2018

ABSTRACT

Background: Cleft lip and/or palate patients are common to depend upon charity events in developing countries. Regardless of these efforts, there has been criticism that the performance has been suboptimal and unmonitored. No consensus exists on the outcome and follow-up care has become the challenge in this type of setting due to the shortage of plastic surgeons. **Aim**: We propose a novel solution for resolving such issues for follow-up and monitoring the outcome by using the Visual Analog Scale score reported by the parents. **Methods**: This was a prospective cohort study at our charity event in Yogyakarta in January 2017. Visual Analogue Scale score data range from 1 to 10 were obtained from parents separately on the appearance of their children before surgery, immediately after surgery, and one year later. **Results**: Thirty-five parents whose 20 children underwent cheiloplasty and 15 palatoplasty were enrolled as respondents. The score for before, immediately after, and one year after cheiloplasty were 3.4 with 95%CI (2.79-4.01), 7.95 with 95%CI (7.33-8.57), 8.75 with 95%CI (8.49-9.01) and P-value <0.01. Palatoplasty's score was 4.33 with 95%CI (3.41-5.26), 7.80 with 95%CI (7.04-8.56), and 7.20 with 95%CI (6.89-7.51) and P-value <0.01. **Conclusion**: The outcome of cleft lip and/or cleft palate surgeries performed in a charity event with non-plastic surgical hospital based setting provides a decent result by a significant increase when appraised using Visual Analog Scale score directly by parents before and one-year after the surgery. There is a non-inferiority result of surgeries performed in charity event settings.

Keywords: cheiloplasty; cleft lip; cleft palate; palatoplasty;social work; visual analog scale.

Introduction

Cleft lip and/or palate (CL/P) is a common craniofacial malformationaround the world. The incidence of CL/P is 1:800 births [1] and there are approximately 7,500 newborns with these defects each year in Indonesia itself[2]. The number of CL/P patients continues to grow in line with the increase in population. CL/P surgeries are often times not accessible to all patients in developing countries. Especially when they live in rural areas and away from major cities and medical centers with complete CL/P team [1-4].

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Rehabilitation of CL/P patient populations requires a multidisciplinary team of craniofacial surgeons, oral and maxillofacial surgeons, orthodontists, paediatric dentists, restorative dentists, and speech and swallowing pathologists [5]. However, in developing countries, like Indonesia and other countries alike, most of these patients also have lack of medical or insurance coverage for the care of the condition [1]. Therefore, it is common to have the care of these CL/P patients becoming dependent upon charity care and events. Regardless of these efforts, there has been criticism that the performance and outcome have been suboptimal and unmonitored. Shortage of plastic surgeons in the area where patients are treated is one of the challenges for follow-up care and outcome monitoring [1].

In this study, we propose a novel solution in resolving such issue for follow up and monitoring the outcome

by using Visual Analog Scale (VAS) scoring system reported by the parents. The follow-up and monitoring are completed in a local clinic or non-plastic surgical hospital setting. This one-year follow-up directed specially to measure the mature scar in the non-plastic surgical hospital-based event setting. We expect this to be the fundamental satisfaction data on the execution of other surgical charity events. Thus, charity programs can be managed better in the future.

Methods

This was a prospective cohort study at our charity event in a non-plastic surgical hospital based setting in Gunungkidul, D. I. Yogyakarta which was held on January 14th, 2017. Inclusion criteria for cleft lip repair patients are at least three months of age, minimum weight of 10 pounds, hemoglobin value >10 g/dl, healthy fit patients, and there are no other comorbid or other congenital diseases. Inclusion criteria for cleft palate patients are at least one year old of age, healthy fit patients, and have no other comorbid or other congenital diseases. The exclusion criteria are patients who have other illness, malnutrition, or syndromic diseases that compromise surgical procedures, and those who are unwilling to take surgery after informed consent about possible risks and complications. Surgeries were done by five plastic surgeons came from a same institution in Bandung, West Java, Indonesia with 10 years of average clinical experience. All suturing materials were using the same brand and size, which are Vicryl 5-0 (polyglactin 910) suture with taper needle for muscle or other soft tissues and Prolene 6-0 (Polypropylene) suture with cutting needle for skin closure. VAS score data of CL/P patients for before, shortly after, and one-year after cheiloplasty or palatoplasty were obtained [6-8].

Parents were asked to give assessment using VAS score separately. Respondents were divided into two groups: those whose children underwent cheiloplasty and those underwent palatoplasty procedure. Each respondent was not allowed to discuss when data was collected. Respondents were asked to assess patients' appearance before surgery, immediately after surgery, and one-year after surgery using a scoring system ranging from 1 to 10, where 1 indicates totally unsatisfied/unattractive appearance and 10 indicates totally satisfied/attractive appearance. Scoring in cheiloplasty was measured by the aesthetic appraisal from the respondents. Meanwhile scoring in palatoplasty was measured by the function, mainly the gap closure, speech voice, and food reflux. During the one-year postoperative assessment, all before surgery and shortly after surgery photos were showed to remind them about the children's appearances at that time to provide a comparison. This assessment is expected to reflect the satisfaction level of the operation results performed in this charity event [6-8].

All data was analyzed using SPSS ver. 20.0 (IBM Corp., Armonk, NY, USA). Statistical examination using Kolmogorov-Smirnov distribution test and Friedman test for the VAS score before, immediately after, and one-year after surgery. A P-value of < 0.05 was regarded as statistically significant [8-10].

Results

Thirty-five parents were followed for one-year follow-up. A total of 20 respondents have children who had undergone cheiloplasty while the remaining 15 have children who had undergone palatoplasty. The patient demographics are summarized in Table 1.

Table 1: Patients' baseline characteristic

Patients' characteristics		**Results**
Sex	Male	76.19%
	Female	23.81%
Cleft lip distribution	Unilateral	75% (left side 60%)
	Bilateral	25%
Cleft palate distribution	Unilateral	80%
	Bilateral	20%
Mean age (min-max)	Cheiloplasty	11.4 (0.25-42) years old
	Palatoplasty	9.6 (1-23) years old

Distribution VAS score using Kolmogorov-Smirnov test was not normal (P-value < 0.05). Hence, data analysis was conducted using Friedman test to analyze the relationship between score before surgery, immediately after surgery, and one-year after surgery.

Table 2: Average VAS score of cheiloplasty results

Cleft lip patient appearances	Average scores / (min-max)	95% CI	P-value
Before cheiloplasty	3.40 / (1- 6)	2.79-4.01	<0.01
Immediately after cheiloplasty	7.95 / (5-10)	7.33-8.57	<0.01
One-year after cheiloplasty	8.75 / (7-10)	8.49-9.01	<0.01

The average VAS score of patients that underwent cheiloplasty is showed in Table 2. The mean total increase of VAS score between before cheiloplasty and immediately after cheiloplasty was 4.55 (P-value < 0.01). There was an 0.80 increase from immediately after cheiloplasty score to one-year after cheiloplasty score (P-value < 0.01). Overall, there was a higher VAS score increase between before surgery and one-year after cheiloplasty 5.35 (P-value <0.01).

Table 3: Average VAS score of palatoplasty results

Cleft palate appearances	Average score / (min-max)	95% CI	P-value
Before palatoplasty	4.33 / (2-7)	3.41-5.26	<0.01
Immediately after palatoplasty	7.80 / (7-10)	7.04-8.56	<0.01
One-year after palatoplasty	7.20 / (5-10)	6.89-7.51	<0.01

Table 3 shows the average VAS score of patients that underwent palatoplasty. The mean total increase of VAS score between before palatoplasty and immediately after palatoplasty was 3.47 (P-value < 0.01). The total VAS score difference between before palatoplasty and one-year after palatoplasty was 2.87 (P-value <0.01). However, there was a decrease as big as 0.60 from immediately after palatoplasty score to one-year after palatoplasty score (P-value = 0.22).

A total of 88.57% of respondents were satisfied with the operations performed in social charity event situations and 94.28% of respondents wished that this kind of charity activity can be held routinely.

Discussion

Gunungkidulis a small subset of the provincial district in Java Island, Indonesia. It is a regency in the southeast part of the province of Yogyakarta Special Region which has 18 districts with the capital center in Wonosari. Most of the districts are drought-prone areas during the dry season due to the geological and topographical conditions as karst areas. Traveling from Gunungkidul Regency to the capital city of Yogyakarta Special Region takes about 2 hours by car through hills and slope roads. The number of healthcare facilities and staff in this area is still very limited. There is not any plastic surgeon and plastic surgical hospital setting in this area until now [1,11]. Based on these factors, Gunungkidul is a suitable place to do our charity event for cleft lip and/or palate surgery.

Cheiloplasty result in this rural place in non-plastic surgical hospital based setting provided a significant increase in aesthetic appearance outcome. VAS score one-year after cheiloplasty was significantly higher than shortly after the procedure. Some factors that may have contributed to this better VAS score were the good scar maturation with favorable scar appearance, decreasing edema, no surgery complication and the good degree of lip proportion [11].However, it was not on palatoplasty's score. There was a decrease in one-year after surgery score when compared to the immediately post-palatoplasty VAS score as big as 0.60 (P-value = 0.22). This happened due to most of the cleft palate patients have passed the best timing for this procedure (average patients age was 9.6 years old) and patients were still expecting better speech improvement. Palatoplasty in adulthood is mostly directed to improve patient's palate appearance and self-confidence but will not change much in their speech functions. On the other hand, palatoplasty in children is directed not only for closing the palate gap but also for producing normal speech, restoring Eustachian tube function, closing fistulas, and minimizing alterations in maxillary growth [11]. The long-sustained speech, increasing hypernasality and no significant improved speech function still may be found in adult patients. The other factor that may have contributed to the lower VAS score in palatoplasty in this charity event was the patent fistulas, the surgical complication that we found in two patients during follow up at one-year after surgery.

Conclusion

In summary, the outcome of CL/P surgeries performed in a charity event with non-plastic surgical hospital based setting provided a significant increase when appraised using VAS score directly by parents before and after the surgery. Future studies are needed to

compare the difference between VAS score of surgeries performed in the hospital-based setting with fully equipped facilities and those in non-plastic surgical hospital-based setting. These data are expected to be an encouragement and a catalyst for future humanitarian cleft missions in Indonesia and other countries as well.

Acknowledgments: We would like to acknowledge our partner for participating in this study, Risal S. Djohan, MD, MBA from Dermatology & Plastic Surgery Institute in Cleveland Clinic, Ohio, USA who participated in a brief review of our manuscript. We gratefully thank all our charity event committees for their loyalty and support who helped us to make this social service event and research succeed. Certainly, thank you to entire respondents for their cooperation in answering our questionnaire.

Declaration of Conflicting Interests: The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Conflict of Interest: None
Source of Support: Nil