

A Comparative Study of the Surgical Outcome of Internationally Adopted versus Swedish Born Children with Cleft Lip and/or Palate

Master Thesis in Medicine

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Abstract

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A Comparative Study of the Surgical Outcome of Internationally Adopted versus Swedish Born Children with Cleft Lip and/or Palate

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Background

At Sahlgrenska University Hospital, internationally adopted patients with a cleft lip and/or palate are treated by a cleft team at the Department of Plastic Surgery. Earlier studies and clinical experience indicate a higher number of surgical complications compared to non-adopted children.

Aim

To show demographic and surgical statistics on adopted children with CL/P, and investigate the surgical outcome in internationally adopted patients compared to non-adopted patients.

Patients and Methods

Medical records of 158 adopted patients receiving surgical treatment at Sahlgrenska University Hospital were analyzed. Twenty-seven of these were selected according to diagnosis and type of surgical treatment and compared to a non-adopted control group, of 68 patients. Four parameters were compared: Bleeding and operation time during bone grafting surgery, as well as number of surgical procedures and number of palato-pharyngeal flap procedures at 10 years of age. The data was analyzed using SPSS, and the non-parametrical Mann-Whitney U test.

Results

The majority of patients had been adopted from China, and the majority of adopted patients had unilateral cleft lip and palate. There was a statistically significant higher number of palato-pharyngeal flap procedures in the adopted group compared to the control group ($P=0,001$). There were no statistically significant differences in bleeding, operation time and total number of surgical procedures between the groups.

Conclusions

Adopted CL/P-patients require significantly more speech improvement surgery compared to non-adopted CL/P-patients.

Introduction

Prevalence and etiology

Cleft lip and/or palate is the most common form of facial malformation. In Sweden, the prevalence is 2 in 1000 births, which means that approximately 150-200 children are born every year in Sweden with CL/P [1]. The etiology is thought to be multifactorial. A combination of several genes and exogenous factors are thought to be involved. Although most clefts are seen sporadically amongst infants, some are attributed to a complex hereditary pattern [2, 3]. The prevalence at birth varies between different countries and ethnic groups, with Native Americans having the highest prevalence at birth at 3.6 cases per 1000 births, followed by Japan at 2.1, and China at 1.7 cases per 1000 births. Furthermore, population studies have shown that children born in more rural areas, with lower socioeconomic status have a higher prevalence of CL/P compared to an ethnically similar group with a higher socioeconomic status [4].

Morphology and classification

There are a number of morphologically different types of clefts, and different classifications of the malformations. One way of classifying the morphology of the cleft is based on the embryology of the developing anatomical structures [4, 5]:

Group 1. Clefts of the primary palate

- a. Lip
- b. Alveolus

Group 2. Clefts of the primary and secondary palate

- a. Lip
- b. Alveolus
- c. Hard palate (secondary palate)

Group 3. Clefts of the secondary palate

- a. Hard palate
- b. Soft palate

Another classification is based on anatomical considerations, such as the classification by Fogh-Andersen, 1942, who divided the clefts into three groups: (1) CL extending to the incisive foramen and including clefts of the alveolus (primary palate); (2) CL and CP (CLP), including unilateral and bilateral CLP; and (3) CP identified as being median and not extending beyond the incisive foramen [4, 5]. The present study will be using ICD-10 for the classification of the clefts [2, 6, 7]:

1. Cleft lip
2. Cleft palate – an isolated cleft in either just the soft, or the soft and hard palate
3. Cleft palate with cleft lip – a cleft in lip, alveolus and palate

Each group can be further divided into unilateral, bilateral, and partial clefts.

Symptoms

Depending on the severity of their cleft, the patients experience difficulties of various degrees and forms:

1. An unsatisfactory velopharyngeal function is a problem associated with a cleft palate. Because the palate is sometimes shorter and less mobile, it can lead to problems with speech development, such as glottal speech and hypernasal voice, and problems associated with enunciation [8-10].
2. The cleft itself, and/or fistulas in the palate can lead to difficulties such as food entering the nasal cavity or suction problems [10].
3. Difficulties that the patients face may be social stigmata of various kinds, associated with an appearance that may be considered deviating from the norm [11].
4. Hearing problems. Patients with CL/P have higher risk of otitis media, which in turn can lead to an impaired hearing and therefore further difficulties in speech development [10, 12].
5. Orthodontic problems leading to increased dental care needs [13-15].

6. Inhibited maxillary growth. Surgical interventions have been found to inhibit the normal growth of the maxilla, in some cases leading to further surgical corrective interventions in adulthood [2, 16].

Surgical treatment

The affected children are, in best case, due to the number of complications which are a result of their malformation, during their childhood and adolescence, monitored by a cleft team. The team is comprised of plastic surgeons, otolaryngologists, speech therapists, nurses, orthodontists, and, in some cases psychologists and geneticists [2, 16]. The long term treatment goals of the cleft patients are to restore normal facial form, normal speech development, and normal maxillofacial growth [17-19].

There are many surgical protocols that can be used in the treatment of CL/P. The protocols therefore differ between different treatment centers. At Sahlgrenska University Hospital in Gothenburg, a two-stage palatal and lip-nose repair is used, followed by bone transplantation of the cleft in the alveolus [16]. The palate is closed with a 2-stage technique, which has replaced the Delayed Hard Palate Closure (DHPC), which was formerly used. This method has been abandoned due to issues raised with speech development. It has generally been thought that early closure of the palatal cleft improved speech outcome, whereas late repair of the cleft was beneficial for facial growth. Current research points to that the optimal timing of the initial cleft repair is 3-6 months for the soft palate, and 15-18 months for the hard palate closure [18, 19].

Soft palate closure

At Sahlgrenska University Hospital in Gothenburg, the soft palate is closed at 6 months. It is performed using a method developed in Gothenburg [19]. Incisions are made at the border of the hard and soft palate. Medially, subperiosteal dissections are performed, whereas laterally, the incisions involve the mucosa behind the maxilla. The cleft is closed using a posteriorly placed subperiosteal tissue flap, originating from the vomer bone. The flap is turned backward to be sutured to the anterior nasal layer of velum (the soft palate). If the patient has an isolated

palatal cleft, the closure is usually done using a method by Sommerlad or by another technique developed in Gothenburg, whereby the whole palate is closed in one session [16, 19].

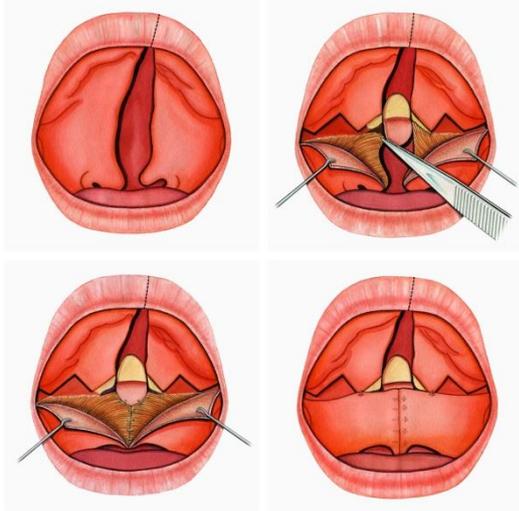


Figure 1. Schematic drawing of soft palate closure, Gothenburg method.

Hard palate closure

The surgery of the hard palate is performed at 24 months of age. The closure of the residual cleft in the hard palate is performed by either one layer, using a tuck-in vomer flap technique, or by a two-layer method, a combination with an oral layer. The closure begins by making incisions close to the teeth, and raising flaps of the mucoperiosteum within the dental arch. At the end of surgery, the flaps are joined in the midline and the palatal mucoperiosteum are united. This is then sutured back in place and no denuded bone is left in the palate [16, 18].

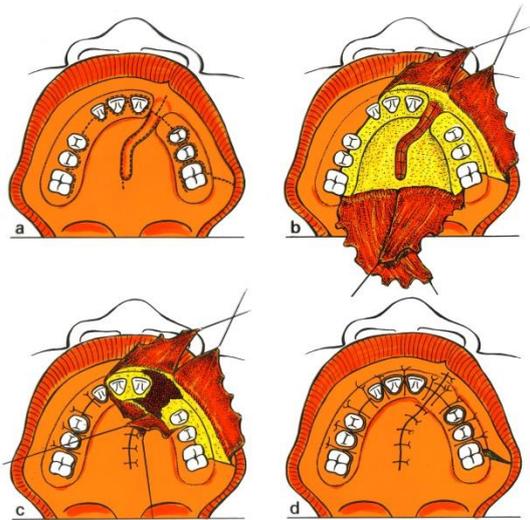


Figure 2. Schematic drawing of hard palate closure.

Lip adhesion

Lip adhesion is used for wide bilateral and unilateral clefts in the lip. The cleft in the lip is closed, by suturing the lip together in two layers, using the lateral part of the lip, from the base of the nose, downwards. This operation minimizes the width of the cleft before the lip-nose repair is performed at one year of age [16, 20].

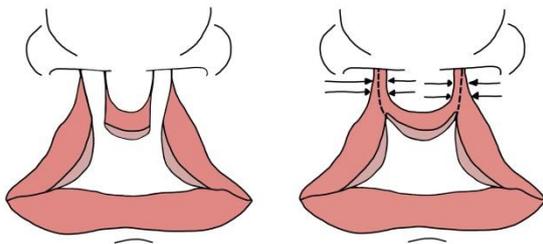


Figure 3. Schematic drawing of bilateral lip adhesion.

Lip-nose plasty

To reconstruct the lip and nose, the Millard method is used. This is performed at 6 months of age at the same time as the soft palate is closed, but if a lip adhesion has previously been done, the lip-nose plasty is performed at 12 months of age [16, 20].



Figure 4. Schematic drawing of lip-nose plasty, Millard method.

Bone transplant to the alveolar ridge (bone grafting surgery)

For closing the alveolar ridge of the maxilla, a method is used where the alveolar ridge is freed, where after bone is harvested from the tibia of the patient, and transplanted to the cleft. This procedure is performed between 7-10 years of age, depending on the stage of mixed dentition, which is the stage at which the child's deciduous teeth are gradually replaced by the permanent teeth [16, 20].

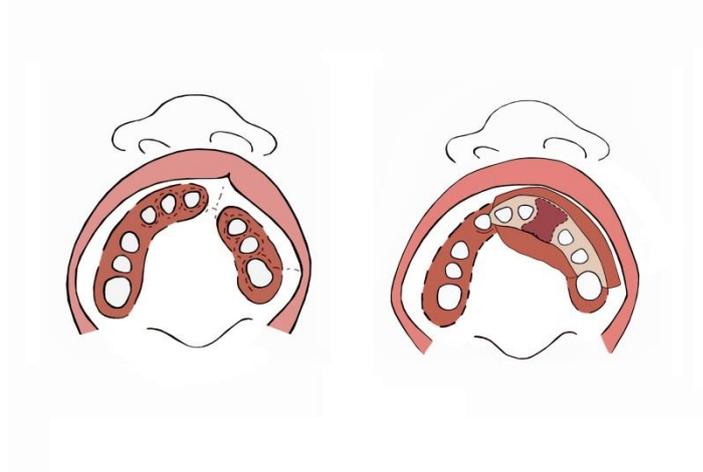


Figure 5. Schematic drawing of bone transplant to the alveolar ridge.

Palato-pharyngeal flap operation

Palato-pharyngeal flap operation is one of several techniques for improving velopharyngeal function and eliminating hypernasality. A tissue flap is dissected from the pharyngeal wall, and then sutured to the soft palate, to allow complete velopharyngeal closure and lateral airways [16, 20].

Surgical outcome in internationally adopted children with CL/P

Surgical complications in treatment of CL/P patients include general surgical complications such as postoperative infections, ruptures and bleeding. Fistulas in the palate following the surgery are important complications especially in cleft surgery, causing speech problems. Recent studies indicate increased complication in the surgical treatment of internationally adopted children with CL/P.

A study on cleft surgery on internationally adopted children in Sweden was conducted by Hansson et al. in 2012. According to the authors, the internationally adopted children present a challenge when it comes to treating clefts, for different reasons. The children are often carriers of multi-resistant bacteria; however, the implications of this circumstance as to the frequency and severity of postoperative infections are unknown. Furthermore, a larger percentage of adopted children have a bilateral cleft compared to native children – 28% of the internationally adopted children have bilateral clefts compared to 14% of the native children, and bilateral clefts are in themselves more difficult to treat. Further treatment issues the internationally adopted group of children propose is timing of the surgical procedures. According to Hansson et al., the median age of arrival in Sweden is 21 months for the adopted children, and surgery is therefore significantly delayed. Problems when it comes to speech development and the attachment of the child to his or her new parents are possible consequences. Hansson's study furthermore reports complications in the form of an increased frequency of fistulas in the palate among the adopted children after surgery, possibly related to the circumstance by which the children who are internationally adopted receive their surgery at a later age in life [21].

In a retrospective review from 2014, Goldstein et al. attempted to compare outcomes of internationally adopted children versus children born in the United States. This study did not, as opposed to Hansson's study, find any statistically significant differences in lip revision or fistula rates or velopharyngeal insufficiency amongst the adopted children, versus the children born in the United States. The study states that a higher frequency of fistulas was found in the postadoption cohort, but that it was not statistically significant, and may be attributed to the fact that the postadoption cohort receive surgery at a later age and therefore the growth of the maxilla of these patients is expected to follow a more normal curve, because of the later

surgical interventions. The study also indicates that the width of the cleft, which is often greater amongst adoptees, could be the reason for this increased rate. An important point made by the authors is that the indications for, and the threshold to perform revision surgery after a primary cleft lip repair vary greatly between surgeons, and can thus in itself be a deciding factor for the differences. The authors also claim that the timing of the surgery may be more essential to the outcome than surgical skill [17].

A study by Mulliken et al (2015) on cleft lip repair for internationally adopted children indicate that there is a higher revision rate of lip repair, when the cleft lip, and/or cleft palate are repaired in another country. The study also concludes that the rate of revision was lower in bilateral clefts, compared to unilateral ones, due to that symmetry was more easily attainable in bilateral clefts leading to a more satisfactory result. The study also suggests that the primary repair in another country increases the chances for adoption. The study also shows that adoption rates after 2007 has decreased, in all probability due to the change in adoption laws in primarily China and South Korea [22].

An article published by Sullivan et al in 2013, attempts to identify the problems internationally adopted children to the United States may have when it comes to speech outcome. The study suggests that the late palatoplasty associated with internationally adopted children can result in speech difficulties. The results of the study also point to that increased age of palatoplasty is associated with velopharyngeal insufficiency, 49% of the internationally adopted patients demonstrate velopharyngeal insufficiency, and thereby speech difficulties. The article concludes that factors contributing to poor speech outcome include palatal type, age at adoption and thereby age when palatoplasty is performed, but also fistula occurrence, infectious diseases, learning a new language, and deprivation, as a result of living in an orphanage. The study also notes that children with a bilateral cleft lip and palate were less likely to have had the palate and lip repaired before adoption. Spoken words begin typically at 12 months of age, and few of the adopted children had received palatal repair before this age. The study also found that late palatal repair was associated with an increase in occurrence of fistulas, compared to earlier palatal repair [23].

Similar results are reported by Swanson et al, (2013). This study found that adoptees required secondary surgery more often than non-adoptees and this regardless of where their primary surgery had been performed. The study reported a higher rate of fistulas and more revisions as well. A high incidence of female adoptees was reported, and boys were more likely to

undergo cheiloplasty (lip surgery) or palatoplasty before adoption. The study noted a decrease of the rate of cheiloplasty and palatoplasty before adoption, and suggests that it might have to do with that rising adoption rates have resulted in recognition that surgical care can be deferred to a team in a resource-rich country. The study further argues that although some surgeons think that the palate should be repaired first, to better the chances of speech development; there are no definitive data to support this view. The reasons for worse surgical outcome when it comes to adoptees are suggested to depend on late age of initial repair, malnutrition, and ethnical variations [24].

In summary, earlier studies report a higher rate of fistulas, a higher rate of velopharyngeal insufficiency, more secondary surgery and higher revision rates for adopted children [17, 21-28].

Aim

The aim of the present study was to show the demographics and surgical procedures of adopted cleft patients treated at Sahlgrenska University Hospital, and to investigate if there is a significant difference regarding the quantity of surgical treatment and surgical complications between adopted patients and non-adopted patients.

Patients and Methods

This study has been approved by a local ethics committee. The study is a retrospective cohort study including 158 consecutive (96 male and 62 female) internationally adopted children born between 1971-2014, treated at the Department of Plastic Surgery at Sahlgrenska University Hospital, for cleft lip and/or palate.

Demographics

Medical records were analyzed, and all 158 patients were classified according to the parameters listed below:

- **Date of birth**
- **Date of registration**
- **Cleft diagnosis, ICD-10**
- **Cleft morphology**
- **Previous surgical treatment abroad**
- **Associated syndrome**

The surgical procedures the patients had received were recorded, meaning quantity of operations and type of procedure. In addition, the following parameters were recorded for each surgical procedure:

- **Date of operation**
- **Type of operation**
- **Operating surgeon**
- **Duration of hospital stay**

- **Duration of surgery**
- **Bleeding in milliliters**
- **Antibiotics prescribed, prophylactic, perioperative and/or postoperative**
- **Complications within 2 days postoperatively**

Comparison of adopted and non-adopted patient group

A control group was obtained from a database containing non-adopted patients who had received surgical treatment between the years 2005-2015. Patients with the diagnosis cleft hard and soft palate with unilateral cleft lip were selected for comparison. The surgical procedure of bone transplant to the alveolar ridge was chosen for comparison, as to the amount of bleeding during surgery and operation time between the two groups. Because bone grafting is performed at a later age, the selection of this group allowed for a comparison of the total number of operations until 10 years of age. Patients with insufficient data were excluded from the study. Patients who had received previous surgery abroad were also excluded. The total number of patients in the two groups was 93. Twenty-six were internationally adopted, and 67 were non-adopted. Four parameters were selected for comparison:

- 1. Bleeding in milliliters during bone grafting surgery**
- 2. Operation time in minutes during bone grafting surgery**
- 3. Total number of surgical procedures until 10 years of age**
- 4. Total number of palato-pharyngeal flap operations until 10 years of age**

Statistical analysis

The data were analyzed statistically, using IBM SPSS software, version 23. The data was found to not be normally distributed, and non-parametric Mann-Whitney U test was used to calculate statistically significant differences between the groups [29]. All calculated p values were considered significant for values $p < 0.05$.

Results

Internationally adopted children with CL/P treated at Sahlgrenska University Hospital 1981-2015

Demography

Demographic characteristics, diagnosis and year of arrival of the analyzed group of 158 internationally adopted children with CL/P are presented below.

Of the 158 adopted patients, the demographic tables show that a majority were adopted from China, 93 patients, 59%. The second most common country of adoption was found to be Korea at 12 patients, 8%. Other countries of origin included India, Brazil, Colombia and Russia.

The most common cleft diagnosis among the patients was cleft hard and soft palate with unilateral cleft lip; 81 of the 158 patients presented with this diagnosis. The second most common diagnosis was cleft hard and soft palate with bilateral cleft lip, with which 49 of the 158 patients presented. Of the 158 patients, 96 were male and 62 were female.

The results also show that there is an increase in adoption numbers in 2006-2010. More than twice as many children were adopted during these years compared to preceding years. Between the years 1981-1985, 5 patients with CL/P were adopted to Sweden and treated at Sahlgrenska University Hospital. In 1986-1990 the number of patients was 9, in 1991-1995, 11 patients arrived. In 1996-2000, 10 patients arrived, in 2001-2005, 19 patients arrived, in 2006-2010, 68 patients arrived, and in 2011-2014, 28 patients arrived.

The total number of operations the patients received amounted to 603. The average number of operations performed per patient was 4. A total of 118 soft palate closures were performed on the patients, 127 residual cleft closures were performed, and 101 bone grafting procedures were performed.

Table 1. Patient characteristics. Table shows patient characteristics of CL/P patients who received surgery at Sahlgrenska University Hospital 1981-2015.

Country of origin	Number of patients
China	93 (59%)
India	7 (4%)
Korea	12 (8%)
Brazil	3 (2%)
Colombia	7 (4%)
Russia	4 (3%)
Other	32 (20%)
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Total number of patients	158
Diagnosis (ICD-10)	Number of patients
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Q35.3 (cleft soft palate), Q35.5 (cleft hard palate with cleft soft palate)	9 (6%)
Q36.9 (cleft lip, unilateral)	15 (9%)
Q37.2 (cleft soft palate with bilateral cleft lip)	3 (2%)
Q37.4 (cleft hard and soft palate with bilateral cleft lip)	49 (31%)
Q37.3 (cleft soft palate with unilateral cleft lip)	1 (1%)
Q37.5 (cleft hard and soft palate with unilateral cleft lip)	81 (51%)
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Total number of patients:	158
Male to female ratio:	96:62(61% males, 39% females)

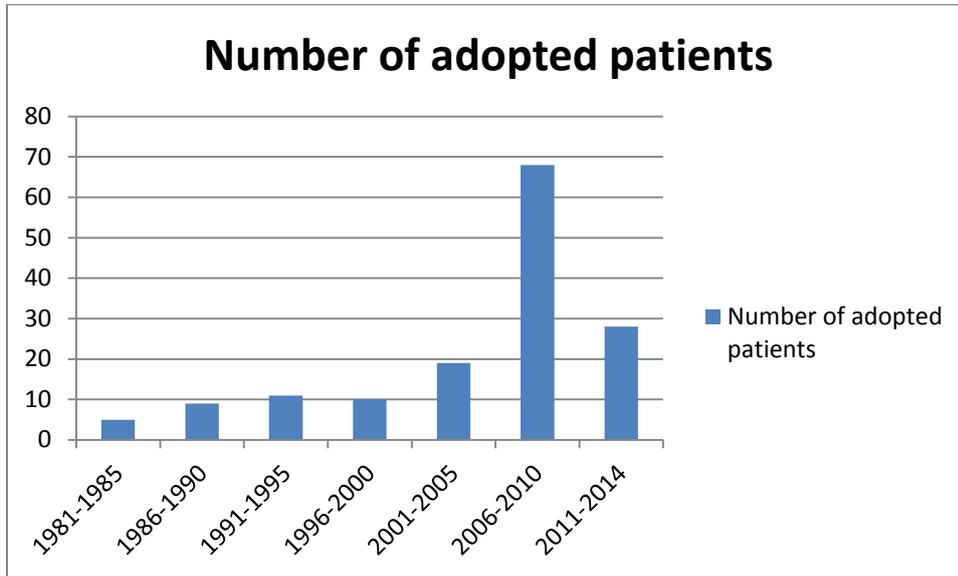


Fig. 6. Year of arrival. Number of adopted CL/P patients arriving in 1981-2014, and treated at Sahlgrenska University Hospital.

Table 2. Surgical procedures. Number of surgical procedures recorded in adopted CL/P patients who received surgery at Sahlgrenska University Hospital in 1981-2015.

Surgical procedure	Number of operations
Average number of operations per patient:	4
Lip adhesion (EAB00)	36
Lip plasty (EAB30)	96
Soft palate closure (EHC32)	118
Residual cleft closure (EHC31)	127
Bone grafting to the alveolar ridge (EEC50)	101
Palatal fistula closure (EHC10)	48
Palato-pharyngeal flap (EHC50)	45
Palato plasty re-op (EHC45)	49
Total number of operations	603

Comparison of adopted and non-adopted patient group

When comparing the group of 26 adopted patients to the control group of 67 non-adopted patients surgically treated during the years 2005-2015, the adopted group was found to have a longer operation time: 9 minutes more performing bone grafting surgery than the non-adopted group. However, the difference was not found to be statistically significant ($P=0,461$). The adopted group was also found to have a higher level of bleeding per operation during bone grafting surgery than the non-adopted group: 16 ml more per operation. The difference was again not found to be statistically significant ($P=0,355$). The adoptees also had a higher number of operations up until 10 years of age, but the difference was not statistically significant ($P=0,272$). Finally, the number of palato-pharyngeal flap operations was found to be significantly higher in the adopted group, compared to the non-adopted group ($P=0,001$).

Table 3. Statistical comparison. Statistical comparison using SPSS, non-parametric Mann-Whitney U test of bleeding, operation time, total number of operations and palate-pharyngeal flap operations at 10 years of age of adopted and non-adopted patients who received surgery at Sahlgrenska University Hospital in 2005-2015 with unilateral cleft lip and palate.

	Adopted	Number of patients	Mean	Median	Standard deviation	P-value
Bleeding (ml) during bone grafting surgery	Adopted	26	86,15	82,50	63,377	0,355
	Non-Adopted	66	70,32	60,00	43,975	
Operation time (minutes) during bone grafting surgery	Adopted	26	101,62	92,00	35,418	0,461
	Non-Adopted	67	91,69	89,00	22,989	
Total number of operations at 10 years of age	Adopted	26	4,54	5,00	1,902	0,272
	Non-Adopted	65	4,05	4,00	1,441	
Number of palato-	Adopted	26	0,77	0,00	0,992	0,001

pharyngeal flap operations at 10 years of age	Non-Adopted	65	0,18	0,00	0,497	
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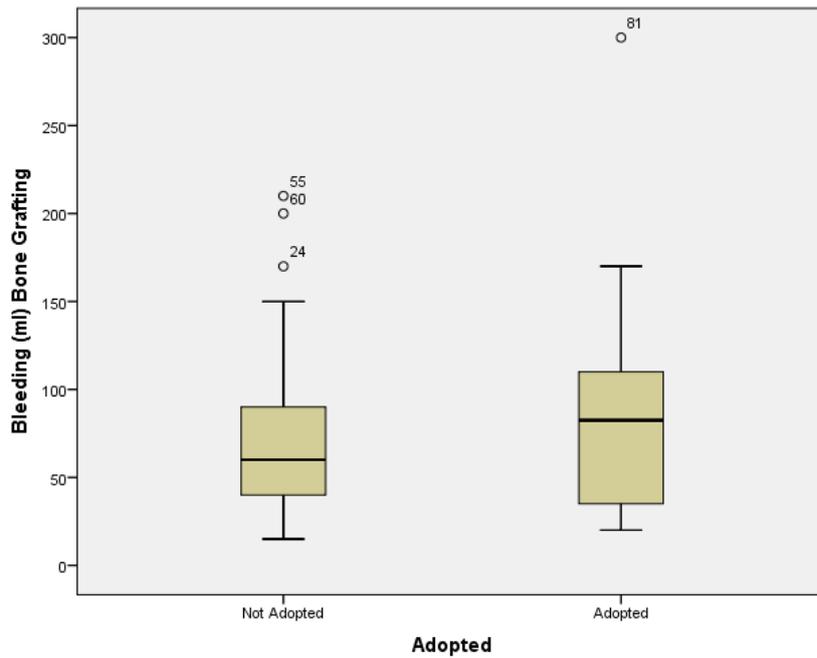


Figure 7. Box plot of comparison of bleeding (ml). Box plot of comparison of bleeding (ml) between non-adopted and adopted patient group with unilateral cleft lip and palate during bone grafting surgery among patients who received surgery in Sahlgrenska University Hospital in 2005-2015.

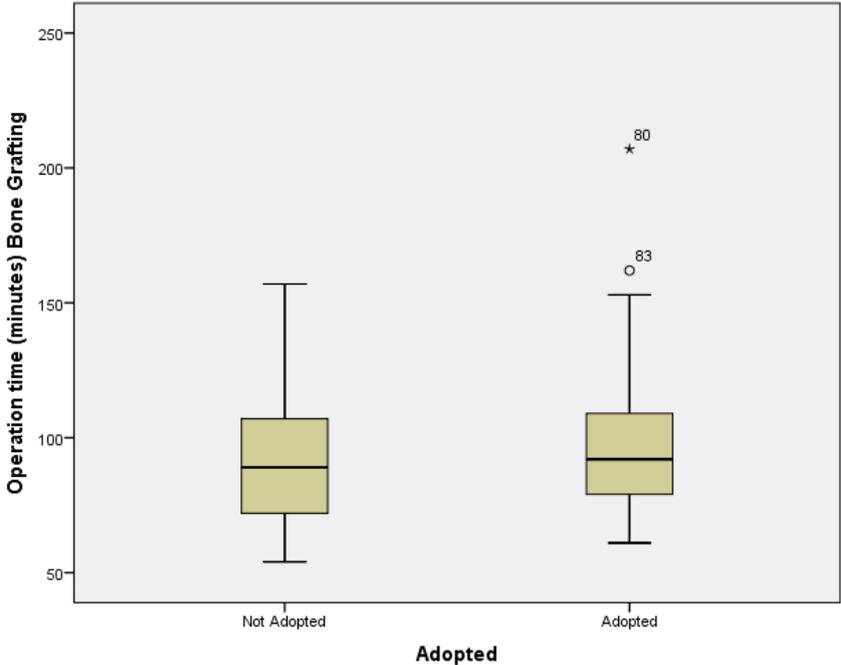


Figure 8. Box plot of comparison of operation time (minutes). Box plot of comparison of operation time (minutes) between non-adopted and adopted patient group with unilateral cleft lip and palate during bone grafting surgery in Sahlgrenska University Hospital in 2005-2015.

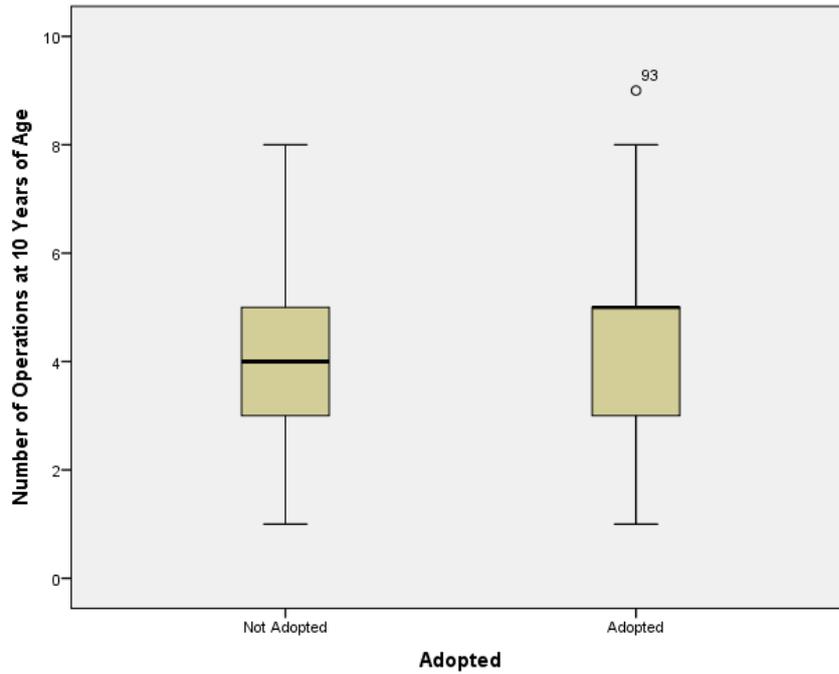


Figure 9. Box plot of comparison of total number of operations at 10 years of age. Box plot of comparison of total number of operations at 10 years of age between non-adopted and adopted patient group with unilateral cleft lip and palate who received surgery at Sahlgrenska University Hospital in 2005-2015.

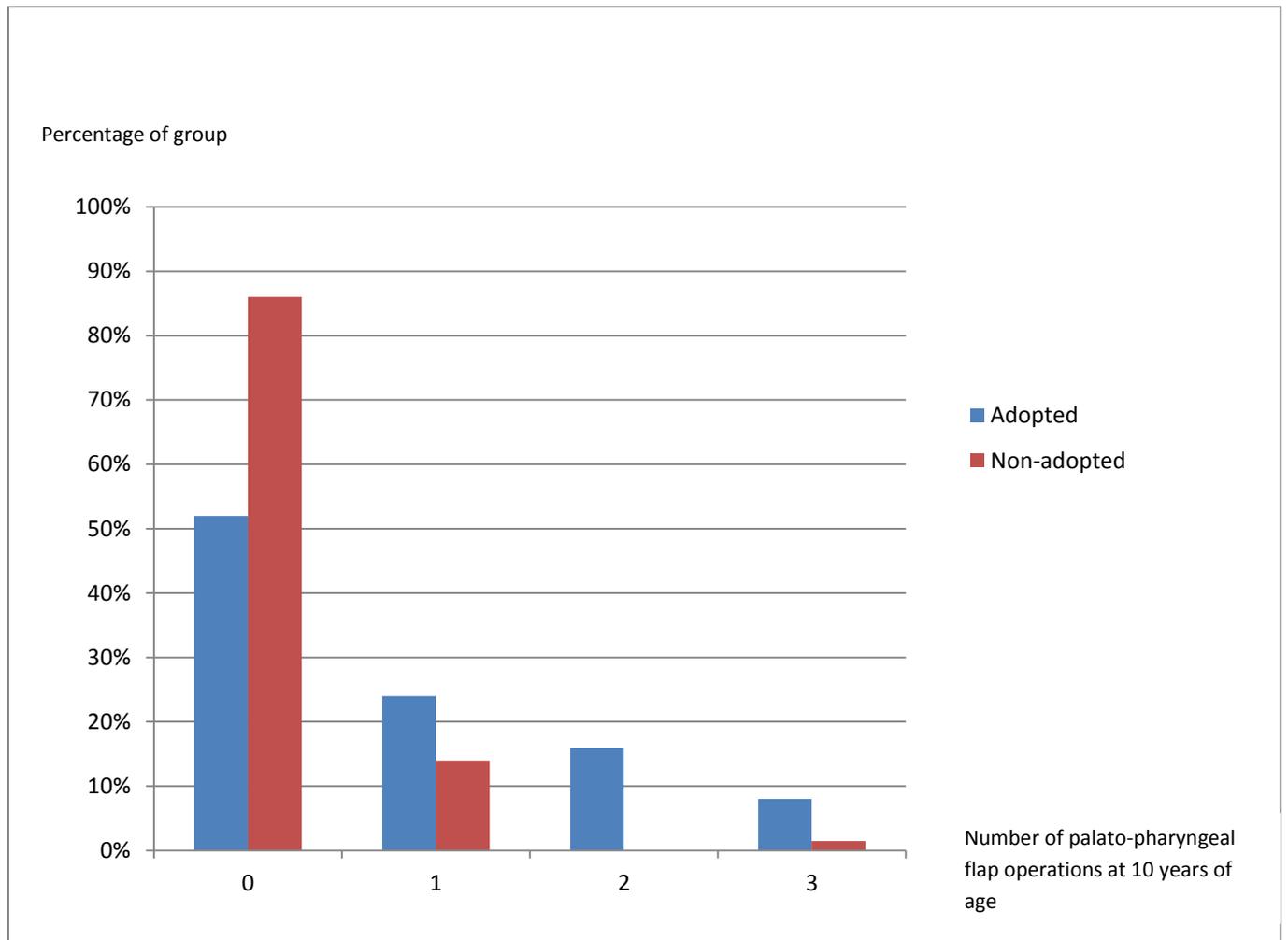


Figure 10. Palato-pharyngeal flap operations at 10 years of age. Diagram showing comparison of palato-pharyngeal flap operations at 10 years of age between non-adopted and adopted patient group with unilateral cleft lip and palate who received surgery in Sahlgrenska University Hospital in 2005-2015.

Discussion

Comparison to earlier studies

Demography

Of the 158 adopted patients, the demographic tables show that a majority were adopted from China, 59%. These results are similar to the ones presented by earlier studies [22-24]. The most common cleft formation among the patients (51%) was the unilateral cleft lip and palate, followed by bilateral cleft lip and palate (31%). These results are in accordance with earlier studies of adopted patients with the most common cleft formation being the complete unilateral cleft lip and palate [17, 22, 24].

The results also show that there is an increase in adoption numbers in 2006-2010. More than twice as many children were adopted during these years compared to preceding years. Adoption law changes in China in 2007 is one of the reasons for these figures [30]. This is also supported by demographic figures presented by Mulliken et al., who reported gradual increase in adoption until 2007, by which the changes in the adoption laws of China led to a sudden decrease. Similar restrictions in adoption laws were also made in South Korea [22].

Surgical outcome

Compared to earlier studies, the higher revision rates found by Mulliken et al. (2015) [22], were not found in this study, when considering the difference in surgical occasions in the adopted vs the non-adopted group. The study by Mulliken et al. shows that 43% of the internationally adopted children arriving with repaired palate received palato-pharyngeal flap operations. The present study shows that 46% of the adopted patients received one or more palato-pharyngeal flap operations. The results of this study are in accordance with the study by Sullivan et al (2014), which reports velopharyngeal insufficiency among 49% of their internationally adopted patients [23]. Swanson et al (2014) found that 23% of their internationally adopted patients presented at the initial assessment with a suspected velopharyngeal dysfunction. This is considerably lower than the results of the present study. However, out of the patients that had previously received surgery abroad, 49% had a

velopharyngeal dysfunction [24]. The study by Goldstein et al. (2014) shows no significant increase in velopharyngeal insufficiency in their internationally adopted patients, as opposed to the present study [17].

A problem associated with comparisons in velopharyngeal function is how to perform the evaluation. The present study compared the number of palato-pharyngeal flap operations performed in the two groups of patients, and thus compared patients clinically with velopharyngeal insufficiency. As earlier studies have pointed out, there are increased problems with speech development of adopted children with CL/P [21]. The significantly higher number of speech improvement surgery of the adopted patients in this study also supports this statement.

Studies indicate that a possible reason for poor speech outcome among adopted patients is the later age at which the patients receive surgery [23, 25-28]. However, there are several other possible reasons to consider as well, such as late acquisition of a second language, or previous surgical treatment of inferior quality.

Methodological considerations

The Department of Plastic surgery at Sahlgrenska University Hospital has been treating patients with a cleft lip and/or palate since 1957. Over time, the methods of surgically treating these patients have changed, due to the development of more scientifically proven and more efficient surgical methods. The surgeons performing the operations have changed over the years, and this poses a problem when it comes to comparing patients treated by different surgeons, at different times. To eliminate this issue, the compared patients included only patients who were surgically treated between 2005-2015, for both the adopted and the non-adopted group. The comparison was also limited to comprise patients with a single morphological type of cleft, the cleft hard and soft palate with unilateral cleft lip. The study only included bleeding and operation time when it came to bone grafting surgery, because the bone grafting surgery is the most standardized procedure. Thus, only a comparatively small number of patients remained for the comparison with the control group.

A further issue with this study is the gathering of information on the patients. Older, hand-written medical records were in many cases scarce and difficult to interpret. The patients were

therefore limited to include those patients who had undergone surgery more recently, in 2005-2015.

Further studies

A larger number of patients is needed to see whether there might be any statistically significant differences concerning bleeding and operation time for adopted patients. It is therefore suggested to perform a standardized, prospective cohort study, where diagnosis and types of operation, as well as use of antibiotics and possible complications are recorded in a standardized way, with a larger number of patients.

Conclusion

The aim of this study was to investigate demographics of adopted patients treated at Sahlgrenska University Hospital, and if there were any statistically significant differences in surgical outcome between adopted patients with a CL/P versus a control group of non-adopted patients.

The demographics of the adopted group show a majority of patients having been adopted from China, and that the majority of adopted patients had unilateral cleft lip and palate, which is supported by earlier studies.

The results of this study show that there was no significantly increased number of operations, amount of bleeding, or operation time in the adopted group, compared to a non-adopted group. This might be due to the limited number of patients included in the study. The number of comparable patients diminishes rapidly when patients are narrowed down by cleft morphology and same surgical protocols.

There was a significantly higher number of adopted CL/P patients requiring speech improvement surgery compared to a non-adopted group.

The implications of the results of this study combined with indications of earlier studies is that there is a patient group comprised of adopted children with CL/P that presents certain difficulties when it comes to surgical treatment of speech difficulties. Timing of surgical treatment seems to play a crucial role, but other factors such as previous surgery in the patients' home countries, learning a second language and possibly more complicated cleft morphologies need to be studied more in order to draw any firm conclusions.

Populärvetenskaplig sammanfattning på svenska

Bakgrund

Varje år behandlas barn som fötts med läpp-käk-gomspalt (LKG) på Plastikkirurgiska kliniken på Sahlgrenska Universitetssjukhuset i Göteborg. Spalterna kan vara enkel- eller dubbelsidiga, och engagera både läpp, käke och gom, eller förekomma i olika kombinationer. På Plastikkirurgiska kliniken följs patienterna av ett speciellt team från födsel till vuxen ålder. Teamet består av läkare, tandläkare och annan personal, och barnen genomgår ett antal operationer utifrån behov, vid olika tidpunkter i livet.

Man har i klinisk erfarenhet och i tidigare studier sett att det finns ett större antal svårigheter förknippade med adopterade barn med LKG. Dessa kan bero på exempelvis att barnen får kirurgisk behandling i ett senare skede, vilket exempelvis kan ge en sämre talutveckling och en sämre anknytning till adoptivföräldrar.

Syfte

Den här studiens syfte är att undersöka demografi och operativa ingrepp hos patienter behandlade för läpp-käk-gomspalt på Sahlgrenska Universitetssjukhuset, och om det finns en skillnad i kirurgiska resultat av adopterade patienter med läpp-käk-gomspalt, jämfört med en kontrollgrupp bestående av icke-adopterade läpp-käk-gomspalt-patienter.

Metod

Ett material på 158 adopterade patienter födda mellan 1971-2014 som behandlats på Plastikkirurgiska kliniken på Sahlgrenska Sjukhuset i Göteborg gick igenom. Dessa patienters journaluppgifter granskades och sammanfördes i en databas. Därefter valdes patienter med en viss diagnos och en viss operation ut, och jämfördes med i övrigt likvärdiga patienter som inte adopterats.

Resultat

Undersökningen visade att majoriteten adoptivbarn adopterats från Kina, att en majoritet har diagnosen ensidig LKG, samt att flest barn adopterats mellan åren 2006-2010. Jämförelsen visade att det fanns en statistiskt signifikant skillnad mellan den adopterade och den icke-adopterade gruppen med avseende på antalet talförbättrande kirurgi, där den adopterade gruppen i genomsnitt fick genomgå ett större antal ingrepp. Resultaten visade dock inte på någon statistiskt signifikant skillnad med avseende på blödning, operationstid eller totalt antal operationer mellan grupperna.

Diskussion

Undersökningen visade att majoriteten av de adopterade patienterna adopterades från Kina, samt att majoriteten av patienterna har diagnosen ensidig läpp-käk-gomspalt. Tidigare studier inom området visar liknande resultat. Resultaten av studien visar att adopterade patienter i högre grad kräver talförbättrande kirurgi, vilket också stöds av tidigare studier.

För att få mer tillförlitliga resultat föreslås att man gör en större, prospektiv studie där man på ett mer standardiserat sätt kan följa blödning, operationstid, antibiotikaanvändning och andra möjliga kirurgiska komplikationer hos patientgruppen.

Slutsats

Den här studien visar att flertalet adopterade patienter adopteras från Kina, samt att flertalet har diagnosen ensidig läpp-käk-gomspalt. Studien visar också att adopterade patienter kräver mer talförbättrande kirurgi än icke-adopterade patienter. Det finns dock inte någon signifikant skillnad vad gäller blödning, operationstid eller antal operationer jämfört med en icke-adopterad grupp.

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