

Cleft Lip Cleft Palate and Craniofacial Deformities Care: An Anesthesiologist's Perspective at the Tawanchai Center

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Background: The increasing number of pediatric patients with cleft lip-palate and craniofacial anomalies is a nuisance problem in the Northeast of Thailand. These patients have complicated problems including physical health, psychosocial, and poor quality of life; therefore, a multidisciplinary care team was established, named Tawanchai center. This study encouraged the improvement of the quality of holistic healthcare service system to improve the quality of life the patients and their families. Anesthesiologists are important personnel in the facilitation of the surgical team, and to help improve other activities including academic, service and research.

Objective: To relate the perspective of anesthesiologist according to the role they play in the multidisciplinary team.

Material and Method: The database of Anesthesiology department and annual report from the period between June 2005 to July 2015 were collected and reviewed.

Conclusion: Highly-skilled and experienced anesthesiologist in the multidisciplinary patient care team play a vital role through the provision of advanced and specific knowledge to anesthesia management. The role of anesthesiologists should be researched to enhance the quality of anesthesia management, thereby contributing to national and international patient care team development.

Keywords: Cleft lip, Cleft palate, Craniofacial deformity, Anesthesia, Tawanchai center

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Cleft lips and cleft palates (CLCP) are common congenital anomalies. Its incidence varies depending on gender, race, and cleft type. CLCPs are more common in Indian and Oriental population with 2.3 per thousand total clefts; whereas, it is least common in the Afro-Caribbean population with 0.6 per thousand total clefts⁽¹⁾. In Khon Kaen province, the estimation of children with CLCP in was 60-70 person per year; however, there were 20% of CLCPs received treatment at Tawanchai center⁽²⁾. These patients experience various complexity problems including physical health, psychosocial, and economy; hence, it was necessary to establish a multidisciplinary care team in order to develop a holistic healthcare service system.

In 1978, the first team for CLCP surgery in Srinagarind Hospital, Khon Kaen, Thailand was formed.

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This team was comprised of only plastic and reconstructive surgeons, neurosurgeons, pediatricians, otolaryngologists, nurses, and dentists. Afterward, in 1999, the service of CLCP care was extended with the incorporation of research group personnel called "The multidisciplinary management of cleft lip, cleft palate, and craniofacial anomalies". The group had healthcare personnel from various departments, including plastic and reconstructive surgeons, oral and maxillofacial surgeons, orthodontists, otolaryngologists, obstetricians, pediatricians, neurosurgeons, psychologists, speech therapist, nurses, social workers, biostatistician and also anesthesiologists.

In 2000, the cleft lip, cleft palate and craniofacial deformities treatment center was established with cooperation and supported from the Smile Train Charity Organization. Its aim was to expand surgical treatments and patients care service under the project "The Smile Train Cleft Care Project: Khon Kaen University Cleft Center".

Thereafter, the center sought to lay emphasis on enhancing the quality of holistic healthcare service system to deliver high-quality services to all patients by providing multidisciplinary management of cleft lip, cleft palate and craniofacial anomalies team. This helped to improve the knowledge of healthcare providers by providing refresher courses, and it serves as a research database for academic works. It also provided research fund and scholars in the field. Additionally, the centre sought to encourage inter-institute and international collaboration of various healthcare personnel, multilevel institutes and organizations, aiming to standardize and strengthen the system of service in the long run.

In 2006, the center obtained an approval from Khon Kaen University and transformed to “Research Center of Cleft Lip Cleft palate and Craniofacial Deformities, Khon Kaen University in association with Tawanchai Project”.

In recent times, surgical correction services are increasing. Anesthesiologists are important facilitators in the team for achievement of successful projects. The estimation of anesthesiology services for patient with CLCPs and craniofacial abnormality was found to be over 100 cases yearly (more common are the patients with unilateral CLCP and unilateral CL).

However, the role of anesthesiologists is not only to facilitate optimal surgical conditions; but, it also involves other activities which include:

1) Academic work

Anesthesiology department recognizes unique problems related to CLCP and craniofacial anomalies in patients; for instance, anatomical variation problem which lead to a difficult airway and respiratory complication including bronchospasm, desaturation and aspiration⁽³⁾.

The department studies anesthesia for congenital anomaly issue as a special topic for residents. Furthermore, the department encourages the learning process by developing airway training courses and difficult airway management algorithm with otorhinolaryngology department. Regarding anesthesiologist’s techniques, general anesthesia balance or inhalation is the most commonly used method for difficult airway management with equipments such as laryngeal mask airway, light wands, pediatric elastic gum bougie, and pediatric fiber optic bronchoscopy⁽⁴⁾.

The department also provided observership programs and international collaboration with Laos People’s Democratic Republic (Laos PDR), for developing learning courses that will improve

anesthesiology services in Laos PDR.

In 2003, the Tawanchai center composed a textbook-called “Interdisciplinary Care of Cleft Lip, Cleft Palate and Craniofacial Anomalies”. Anesthesiologists role became an integral part of this book including one chapter which focused on “Anesthetic Management in Cleft Lip, Cleft Palate and Craniofacial Deformities”⁽⁵⁾.

In 2013, the department invited guest speakers from University of Wisconsin-Madison, USA to deliver a refresher lecture, workshop and live case demonstration in “The International Conference of Pediatric and Craniofacial Plastic Surgery”.

In addition, the department implemented an established protocol, care map and guideline for preoperative evaluation and preparation for pediatric patients including NPO time (Table 1) and indication for cancellation of elective cases. Children with CLCP have risk for upper respiratory tract infection (URI) and the decision to proceed with anesthesia for these children is a controversial issue. The practice should be based on careful preoperative assessment, including a detailed history and physical assessment. These patients should be evaluated for fever >38 celsius, dyspnea, nasal congestion, lethargy, productive cough, sputum production, and signs of pulmonary involvement-wheezing. Therefore, children with more severe symptoms should have their elective surgery postponed for a minimum of 2-4 weeks⁽⁶⁾.

Later in the study, an update on preoperative guideline will be revealed along with the results of an interaction with a multidisciplinary team.

2) Anesthesia services

After the multidisciplinary team care was formed, the anesthesiology department advanced anesthesia care service by providing both academic service and anesthesia service for inter-institutes and international organizations by developing collaborations with multidisciplinary care for cleft lip-cleft palate conferences, workshops and case

Table 1. Summary of fasting recommendations⁽⁷⁾

Ingested material	Minimum fasting period
Clear liquids	2 hour
Breast milk	4 hour
Infant formula	6 hour
Nonhuman milk	6 hour
Light meal	6 hour
Heavy meal	8 hour

demonstrations, in conjunction with Laos PDR.

In addition, anesthesia service activity at Lao included lecture of pediatrics airway and anesthesia for cleft lip and cleft palate, pediatric CPR and workshop case live demonstration. Also, we have provided airway device, equipment and monitor for Laos PDR.

In 2005, the multidisciplinary team conducted a survey at Mahosot Hospital, Laos PDR to facilitate “collaborations of multidisciplinary care for cleft lip and palate” project at Mahosot Hospital.

In 2007, Tawanchai cleft center started its 1st workshop focusing on pediatric anesthesia. So, the anesthesiology department played an important role in knowledge management, pediatric anesthesia training which enhanced safety, anesthesia service confidence boost and helped the Mahosot’s pediatric anesthesia team to set up.

In 2008, the Mahosot Hospital continued the workshop in its second year Laos PDR to refresh knowledge and sustain anesthesia quality improvement.

In 2009, it initiated an international conference as “Collaborations of multidisciplinary care for cleft lip and cleft palate: cleft palate surgery workshop” in collaboration with Thailand, United State of America, Canada, Germany and Laos PDR at The Princess Mother Memorial Building, Khon Kaen University, Khon Kaen, Thailand. Anesthesiologists delivered a lecture called “Anesthesia in Palatoplasty”.

In 2010 and 2011, the Cleft center extended the collaboration of multidisciplinary care for a CLCP conference at Khammouane Province Hospital, Thakhek, Khammouane province, Laos PDR.

Also, in 2011, the Faculty of Medicine, Khon Kaen University set up an annual meeting and conference. Anesthesiologists joined a pre-congress lecture; “New Trend Research in Anesthesia for Cleft Care”.

In 2012, “Comprehensive cleft care for improvement of surgical outcomes in Northeast Thailand” conference was initiated as an inter-institute conference and workshop for hospitals in Northeast Thailand in collaboration with a speaker team from Canada, Buriram province, Thailand and the meeting was concluded at Srinagarind Hospital.

In 2014, the academic refresher course continued at Champasak district, Laos PDR.

In summary, an anesthesia team, as part of the multidisciplinary team, consists of staff anesthesiologists, anesthesiology residents, and nurse anesthetists, who are experienced and skilled in cleft-

lip cleft-palate and craniofacial deformities patient care. They contribute to all academic services, such as delivering lectures and hand-on airway management workshops cooperating with simulation to elevate effective skills and strategies for pediatric intubation that promote patient safety and increase provider confidence. Most of all, the role of anesthesiology team is essential in the establishment of multidisciplinary team for CLCP patients and provided holistic healthcare service for several hospitals in Northeast of Thailand and Laos PDR.

3) Research activity

Research is essential for the evolution of best practices in holistic patient care including anesthesia service. Anesthesiology department encourages and promotes research efforts as the basis of all academic disciplines by providing research resources, efficiency research management system, research fund as well as support for research publication national and international level.

Research already published

Outcome of anesthetic management for children with craniofacial deformities published in Pediatrics International June 2013⁽⁸⁾.

Research in publishing process

Anesthetic techniques and perioperative complications of cleft lip and cleft palate surgery at Srinagarind Hospital.

Research on proposal writing and recruiting process

Nursing Care System Development for Patients with Cleft Lip-Palate and Craniofacial Deformities at Srinagarind Hospital: Role of Nurse Anesthetists.

The development of nursing practice guideline for cleft lip and cleft palate anesthesia in Srinagarind Hospital.

Development and monitoring the key performance index of the quality of care for patients with cleft lips/palates at Srinagarind Hospital: Role of Nurse Anesthetists

Incidence and risk factor of anesthetic complication in children undergoing cleft lip and palate surgery

Research projects in the future

Advance pediatric preoperative evaluation and preparation system for cleft lip cleft palate and

other craniofacial anomalies patient undergoing any type of surgeries, and also, day case surgery system and improve information giving system to parents.

Develops complete perioperative care guideline include preoperative preparation, intraoperative care and postoperative care include pain control for pediatric patients.

The aforementioned studies were derived from participation and collaboration of anesthesiologists, anesthesiology residents, nurse anesthetists and also, other members of multidisciplinary care team who aim to promote improvements in the delivery of anesthetic service system and holistic care, reducing hospital morbidity and mortality rates.

Fortunately, during this year (January 2015), the anesthesiology team has had the opportunity to participate in “Development of Researchers of Tawanchai cleft center workshop” project, at Balios Resort Khaoyai, Pak Chong District, Nakhon Ratchasima province, to develop research potentials and skills for physicians and other healthcare providers, and got involved in brainstorming sessions and new research questions development in the multidisciplinary approach.

Discussion and Conclusion

Anesthesiologist play a vital role in the multidisciplinary patient care team by providing advanced and specific knowledge, highly skilled and experienced anesthesia managements, encouraging research activities to enhance quality of anesthesia service and, also, contributes to national and international patient care team development. Therefore, the perspective of anesthesiologists in the Tawanchai cleft project improves the quality in anesthesia service alongside other members participating in multidisciplinary team care.

By holding to the centre’s principle, from abbreviation of the center, Ta-Wan-Chai (T.W.C): T = Total value, W = working together, C = Commitment to quality, the department continues to emphasize on delivering high-quality services, standardizing and strengthening holistic care in a multidisciplinary fashion, aiming to elevate quality of life for CLCP patients and their families. This will produce valuable outcomes which will positively affect organizations and nations in the future.

What is already known on this topic ?

A multidisciplinary team care was formed in Tawanchai center with an anesthesiology team to

improve the quality of holistic healthcare service system.

What this study adds ?

A multidisciplinary team in Tawanchai center is stronger, expanded and, also contributes to national and international patient care team development in economically insufficient areas.

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Abbreviations

CLCP = Cleft lip and Cleft palate, CL = Cleft lip, Laos PDR = Laos People’s Democratic Republic, NPO = Nil per os, CPR = Cardiopulmonary resuscitation, URI = Upper respiratory tract infection, TWC = Ta-Wan-Chai.

Potential conflicts of interest

None.

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การดูแลผู้ป่วยปากแหว่ง เพดานโหว่และความพิการแต่กำเนิดของศีรษะและใบหน้า: มุมมองของวิสัญญีแพทย์ตะวันตก

กัทลียา ทองรอง, วิมลรัตน์ ศรีราช, นนทิดา โรจนพิทยากร, ปิยะพร บุญแสงเจริญ, พรเทพ เกษมศิริ

ภูมิหลัง: ภาวะปากแหว่งเพดานโหว่และความพิการแต่กำเนิดของศีรษะและใบหน้าในปัจจุบันนี้มีปริมาณเพิ่มขึ้น และนับเป็นปัญหาที่สำคัญอย่างมาก ในเขตภาคตะวันออกเฉียงเหนือ ประเทศไทย นอกจากนี้ยังเป็นความพิการแต่กำเนิดที่เกี่ยวข้องกับปัญหาหลายด้านและมีความซับซ้อน ซึ่งมีผลกระทบต่อร่างกายและจิตใจ คุณภาพชีวิตของผู้ป่วยและครอบครัว รวมถึงการสูญเสียทางเศรษฐกิจของชาติ ดังนั้นศูนย์ตะวันตกจึงจัดระบบให้มีการประสานงานแบบทีมสหสาขาวิชาการ เพื่อรวบรวมผู้เชี่ยวชาญสาขาต่างๆให้ร่วมกันวางแผนการรักษาดูแลโดยมุ่งเน้นที่ผู้ป่วยและครอบครัวเป็นศูนย์กลาง ซึ่งทีมวิสัญญีเองก็เข้ามามีบทบาทที่จะช่วยเหลือทีมให้ประสบผลสำเร็จให้ทุกๆ ด้าน ไม่ว่าจะเป็นการผ่าตัด การให้บริการทางวิชาการ และการดูแลรักษาผู้ป่วย รวมทั้งการวิจัยต่างๆ ด้วย

วัตถุประสงค์: เพื่อนำเสนอมุมมองและบทบาทของทีมวิสัญญีในการเป็นส่วนหนึ่งของทีมกับศูนย์วิจัยปากแหว่ง เพดานโหว่

วัสดุและวิธีการ: ศึกษาบทวนและเก็บข้อมูลจากฐานข้อมูลของภาควิชาวิสัญญีวิทยา และรายงานประจำปีของศูนย์ตะวันตกตั้งแต่ปี พ.ศ. 2548 ถึงเดือนกรกฎาคม พ.ศ. 2558

สรุป: วิสัญญีเป็นหนึ่งในทีมสหสาขาวิชาการที่มีความสำคัญช่วยให้ความรู้ ฝึกทักษะและประสบการณ์ ในการระับความรู้สึกและดูแลผู้ป่วยปากแหว่งเพดานโหว่ รวมทั้งส่งเสริมให้ทีมงานวิจัยเพื่อส่งผลกระทบต่อคุณภาพ การทำงานของทีมบริการวิสัญญีและศูนย์ตะวันตกรวมทั้งมีการสร้างเครือข่ายไปที่พื้นที่ใกล้เคียงในประเทศ และต่างประเทศให้พัฒนาอย่างต่อเนื่อง
