

Case Report

Failed Attempt to Improve a Decision Process in Pediatric Cardiac Service: Dysfunctional Organizational and Safety Culture

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Received: November 19, 2019; Accepted: December 16, 2019; Published: December 23, 2019

Abstract

This case report describes how a deficient organizational structure can impact patient safety and burden the intensive care resources. A pediatric cardiologist and a fellow pediatric cardiac surgeon decided to complete a bilateral pulmonary artery banding and proceed with prolonged prostaglandin infusion on a 2-day-old infant with hypoplastic left heart syndrome after a telephone consultation with a foreign senior pediatric cardiac surgeon. Another senior pediatric cardiologist did not agree with the proposed plan due to a lack of experience of a domestic surgeon in training and paucity of experience of physicians in the intensive care unit with prolonged prostaglandin infusions. As the organizational matrix deferred to the decision of the cardiac surgeon, the infant surgery was done. Unfortunately, the banding procedure was unsuccessful, and the infant then underwent a Norwood procedure. Six weeks later, the infant died suddenly during a routine chest X-ray examination. The cause of death was heart failure. An audit commission was arranged. Their report determined several systemic flaws in the pediatric unit; however, the hospital chose to publicly discredit its audit commission rather than make adjustments in response to the findings.

Keywords: Pediatric cardiology, Decision making, Hypoplastic left heart syndrome, Bilateral pulmonary artery banding, Norwood procedure, Root cause analysis

Introduction

In pediatric cardiology, technical skills are essential for positive outcomes; however, there are many elements, including human factors that influence the outcomes of complex pediatric cardiac care. The decision-making process does not require only competencies but is often guided by rigid hierarchies within healthcare organizational structures; time restraints further influence it for briefing and the organizational and patient safety culture [1].

For many small countries, there is only a single facility for pediatric cardiac service. The subject of this case report is the pediatric cardiac center that has an annual load of about 100 congenital heart disease surgical procedures in children and another 20 in adults. Complex cases are referred abroad to larger centers. In 2012, the organizational structure did not have an “in-house” pediatric cardiac surgeon; instead, a contracted surgeon was present 2 to 3 days per month and coverage for service in their absence was handled by younger surgeons in training.

This report aims to describe the decision-making process for an infant with hypoplastic left heart syndrome and to show how organizational and patient safety culture can influence the management of complex congenital heart disease.

Case Report

A 2-day-old infant presented with hypoplastic left heart syndrome, aortic atresia, mild tricuspid regurgitation, a bi-directional

shunt through the ductus arteriosus and an atrial septal defect with a left-to-right shunt. A pediatric cardiologist, a pediatric cardiac surgeon in training and a pediatric intensivist conferred with a foreign, senior pediatric cardiac surgeon. After a thorough discussion, the team decided to perform a bilateral pulmonary artery banding and continue with the infusion of prostaglandins for a few months. Another senior pediatric cardiologist, who had not participated in the initial decision making, did not agree with this kind of surgery due to lack of experience of the domestic surgeon and inexperience of the physicians in the intensive care unit with the use of prolonged prostaglandin infusions in infants. He proposed an air transfer of the patient to a senior surgeon for the Norwood procedure. Because of the lack of consensus, another meeting was held the following day. At this second meeting with the pediatric medical director, no conclusive decision was made. Finally, on the fifth day, the patient underwent the originally proposed bilateral pulmonary artery banding followed by a continuous prostaglandin infusion to keep the ductus arteriosus open. Seven days after surgery, the team performed an atrioseptostomy procedure because of a restrictive atrial septal defect. However, this procedure was not successful. The patient then underwent surgical atrioseptectomy. The patient could not be extubated; thus, he underwent a Norwood/Sano procedure at approximately one month of age. The contracted senior surgeon did the procedure, and the patient was discharged to home. The patient was readmitted six weeks later because of a urinary tract infection. Echocardiogram and cardiac catheterization showed poor right ventricular systolic function with asynchronous contractions. Five

days after admission, the patient suffered from apnea and went to cardiac arrest during a routine x-ray. Cardiopulmonary resuscitation was unsuccessful, and the patient died.

An audit commission was named by the senior leadership of the hospital for analysis of the event and was composed of an external pediatric cardiologist, a cardiac surgeon, and a pediatric intensivist.

The root causes identified included the absence of an in-house senior surgeon, the lack of a homograft for the Norwood procedure, the need for an expedient conflict resolution process for procedural decisions, and the deficiency of a professional meeting/briefing plan. The report went on to highlight contributing factors for this case's poor outcome. These factors included: an absence work in silos; no home monitoring after the Norwood procedure; no compliance with accreditation standards regarding granting of clinical privileges; no registry for surgical procedures or collaboration with the European Association for Cardio-Thoracic Surgery database; and no multi-professional of a standard professional code of conduct; an inadequate informed consent system; no cohesive leadership structure for the pediatric cardiac service as each unit (cardiology, surgery, intensive care teamwork training.

The hospital strongly and publicly disagreed with the report. The leadership openly distributed a rebuttal to the audit report to promote the hospital's "excellence." They clarified that their actions were highly ethical and emphasized that the program of pediatric cardiac surgery is safe and of high quality. The hospital claimed that bilateral banding of the pulmonary arteries was a routine operation for a hypoplastic left heart syndrome; however, evidence shows that it had never been performed in this hospital before this case and was at that time reserved for larger centers. The hospital stated that they have to consider the introduction of new, less risky procedures as this is the tertiary hospital. Finally, the hospital discredited its audit commission. They argued that the audit commission did not include professionals who were involved in the case. This last statement is quite problematic, as it is never appropriate for the directly involved personnel in an adverse event to be part of an audit commission.

Discussion

The top management at this facility chose to ignore the recommendation of the audit. This response is not uncommon, and it is fairly typical when an institution has a pathologic safety culture.² Unfortunately, when such a culture is in place, there is a higher risk of harm to the patients, and the cost to the public is often disregarded [2]. It is difficult for any hospital to admit that sometimes, things can go wrong. There is a concern of liability and loss of public faith. Proper assessment of adverse events is vital for improvement, and it requires a culture of trust. Debriefing after poor outcomes must be seen as an opportunity for learning and improvement and not simply as a time for defense or blame. The response the hospital chose is typical of vulnerable system syndrome [3], which is a condition

that describes the intermingling of the self-preserving components of blaming, rejecting systemic errors, and stating excellence of performance. These behaviors enforce systemic barriers to safer healthcare and stand in the way of creating a better organizational and patient safety culture. Today's successful healthcare systems have transitioned from a craftsmanship mindset to that of systemic thinking; this means that a structure is in place that addresses the need for system-level actions to optimize safety strategies [4]. In this case study, the hospital displays little awareness of this vulnerability and instead has deliberately avoided limiting the discretion or autonomy of healthcare professionals.

The concern has risen, as recently it was discovered that the hospital misled the Ministry of Health and the general public by publishing errant mortality data [5]. For the years 2007-2013, they indicated that the mortality rate was 1.8% [5]; however, an external, international audit commission found that the mortality rate was 4.9% [6]. This difference is significant.

Concluding Summary

Denial is the greatest threat to patient safety. A culture of silence, unawareness, indifference, and complacency are the worst enemies of improvement [7]. Such a system will eventually lead to intellectual and professional dishonesty; professionals will feel more pressure to cover up mistakes rather than discussing them openly and learning from them. Truthfulness and openness among all involved in the care of pediatric cardiac patients and their families are necessary to generate a patient safety culture whose values represent that of the highest moral character.

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