

Neonatal Surgical Emergencies Immediate Referral

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ABSTRACT

Background: This study was conducted to explore the circumstances around which neonates are referred to the pediatric surgical team of Liaquat University Hospital. This influences the surgical management of neonatal emergencies outcome which also turns on awareness of the conditions early diagnosis, proper resuscitation, excellent nursing care, and refer to the proper center, main requirement is the application of a basic neonatal transport unit, whenever necessary these neonates are referred to these centers from wherever they are born.

Methods: It is a retrospective descriptive study carried out at Liaquat University Hospital Hyderabad Sindh. This study included every referral neonatal surgical emergency managed by the pediatric surgical team from June 2017 to May 2019. Data were obtained from the patient's files and operation theatre register.

This study was conducted over two years from June 2017 to May 2018 in the department of pediatric surgery, Liaquat University of medical health sciences Jamshoro. All the neonates presenting with surgical emergencies were included irrespective of gender, mode of referral, and causes that warrant surgical exploration using sampling of convenience. However, neonates whose carers did not consent to be a part of the study were not included. Inform consent was taken from either of the parents reassuring them about confidentiality, as well as the treatment being unaffected had they chosen to withdraw from a study at any time. The study variables included age, sex, weight, and referral pattern, later data was analyzed using SPSS version 21.

Results: Fifty-three neonates were operated in July 2017 to June 2020. Out of 53 neonates, 32 were male and 21 female. The male to female ratio is 1.5:1. Anorectal Malformation 12 (22.6%) Intestinal Atresia 6 (11.3%) and Pneumoperitoneum 5 (9.4%) Hirschsprung's disease 9 (13.2%). Neonates with low birth weight were 5 (9.4%). The basic neonatal referral & transport system was poorer. Age at the time of presentation ranges from 1 to 20 days, a median age was 3 days. Dehydration in mild, moderate, and severe was noted in 38 (71.6%) of the referral neonates. The leading cause of morbidity and mortality was sepsis, mortality was 7 (13.2%).

Conclusion: Management of neonatal emergencies the morbidity and mortality were not as high compared to other developing countries. However, improvement in the outcomes will require awareness, early referral to the concerned department, and overcoming difficulties by providing a well-equipped hospital that will provide an outstanding nursing facility and a well-equipped neonatal transportation system.

Keywords: Neonatal transport unit, Basic resuscitation, Good nursing care, Neonatal intensive care unit

INTRODUCTION

Neonates born with birth defects need to be addressed surgically but cultural norms hinder treatment modality. Delayed referral and deficient neonatal transport system aggravate the situation. Disease processes are often well advanced when patients receive in tertiary care hospitals after traditional remedies have failed. Immediate and appropriate surgical attention which is not commonly available in developing countries.^{1-3, 4-6} illiteracy, ignorance, and poverty are all responsible. Neonatal Surgery and anesthesia elicit distinctive responses. Frequently asked questions from parents, whether my baby would tolerate surgery and anesthesia or congenital defect will correct to natural. The health care system determines infant mortality rate and value of life, Institution with good health and delivery system is a prime success for neonatal surgery. The difficulties of neonatal surgical services in Hyderabad are more or less common in other regions of the country. Deficient human and resources material in the centers or specially trained staff, & doctors, poor infrastructure, poor facility of transport, and problems of poverty hurt its implementation.⁷ Liaquat University hospital is a tertiary care hospital, catering to peripheral regions. The status and expectation of all the referrals to pediatric surgical patients have not kept matching the development of infrastructure.

Exceptionally modernized sophisticated perioperative care, significantly reducing morbidity and mortality in neonatal surgery.⁸⁻¹⁰ in low to middle-income developing countries the neonatal surgery burden is more than 90%.^{11, 12} In the Outcome of neonatal surgery the major contribution is poverty with a poor resource health care system in developing countries.^{8-10, 13-15} prenatal diagnosis of complex birth defects allows for early labor planning

and postnatal surgical intervention treatment associated with a better prognosis. However, developing countries are still lagging in this area due to the insufficiency of gadgets and a skilled workforce.¹⁶

This study was conducted to evaluate the outcome of unmanaged referral neonatal surgical emergencies at Liaquat University Hospital to provide the best solutions in the coming years ahead. The aim was to evaluate the neonatal emergency referral difficulties in their management and the outcome.

MATERIALS AND METHODS

It is a retrospective descriptive study conducted at Liaquat University Hospital Hyderabad Sindh. This study incorporates all referral neonates with surgical emergencies managed by the pediatric team from June 2017 to May 2019. Data were obtained from the patient's files and operation theatre register.

This study was accomplished over two years from June 2017 to May 2019 in the pediatric surgery department, Liaquat University of medical health sciences Jamshoro. All the neonates presenting with surgical emergencies were included irrespective of gender, mode of referral, and causes that warrant surgical exploration using sampling of convenience. However, neonates whose carers did not consent to be a part of the study were not included. Inform consent was taken from either of the parents reassuring them about confidentiality, as well as the treatment being unaffected had they chosen to withdraw from a study at any time. The study variables included age, sex, weight, and referral pattern, later data was analyzed using SPSS version 21.

RESULTS

This study included a total of fifty-three neonatal surgical emergency referrals. Out of 53 neonates, 32 neonates were male and 21 female. male to female ratio of 1.5:1. Home deliveries were 12 (22.6%) of the referrals were presented to basic health units or private hospitals than to us tertiary care. Age at the time of presentation ranges from 1 to 20 days, a median age was 3 days. Table I show different anomalies and Table II shows weight at the time of presentation.

Table 1: Overall Mortality and Anomalies

Diagnosis	Total Number	Mortality	Percentage
Anorectal Malformation	12	2	22.6
Gastroschisis	4	1	7.5
Intestinal atresia	6	2	11.3
Pneumoperitoneum	5	1	9.4
Hypertrophic pyloric stenosis	8	0	15
Omphalocele	6	1	11.3
Hirschsprungs disease	9	7	13.2
Sacroccocygeal teratoma	2	1	3.7
Total	53	7	13.2

Table 2: Weight distribution of referral neonates

Weight (kg)	Number	Percentage
> 3 kg	4	7.5
2.5 – 2.9	18	33.9
2.0 – 2.4	26	49
1.5 – 1.9	5	9.4
Total	53	100

Table 3: Referral and transfer process common problems encountered

Common Problems	Number	Percentage
Nasogastric Tube	35	50.7%
Venous Access Line	47	68.1%
Urethral Catheter	46	66.6%
Transport Incubator	69	100%
Dehydrated	38	55%

Table 4: Complications

Complications	Number	Percentage
Sepsis	12	22.6%
Wound Infection & dehiscenc	20	37.7%
Anastomosis Leak	3	5.6%
Mortality	7	13.2%

DISCUSSION

A neonatal surgical emergency presents a difficult task in patient care, particularly in terms of resource management and a weak transport environment. Improvement in the development of modern well-equipped neonatal transport facilities, diagnosis of neonatal congenital defects by sonologist in utero, and improvement in the obstetric centers by the development of modernized obstetric centers, with the availability of total parental nutrition.¹⁷

In developed countries, they have taken services to the next level, facilitating the survival of newborns with surgical problems and birth defects that were initially considered life-threatening. In our hospital, the neonatal surgical result is not exceptional, since in the developed countries.^{18, 19} the evolution is at an initial stage or in a constant state. It is noted with concern that neonatal and perinatal mortality rates in developing countries such as ours have

fallen over the past decade, but are not comparable to those in developed countries, particularly sub-Saharan Africa, a developing country that has not decreased significantly.²⁰ Developing countries face the biggest problem of inaccessibility of modernized skilled obstetric and prenatal care in rural areas, inefficient community services for neonatal transport, and weak and ineffective health care facilities. Still, a significant number of babies are born at home deliveries and referred through an ineffective weak system with poor availability of basic principle neonatal transportation. The poor facility to which they are delivered will not be referred to the appropriate center for the first treatment of newborns in emergency surgery. These elements have a provoking result that threatened the survival of newborns, late referral is one of the major factors of higher mortality. Worryingly, only a small number of babies were referred during the study. This implies a weak referral system from peripheral clinics to specialist centers meaning that far fewer newborns receive care than those who need it. The majority of newborns in developing countries are deprived of basic medical health care facilities.

The advancement & improvement of antenatal care requires prenatal diagnosis. For antenatal care, prenatal diagnosis is important to refer a mother to a well-equipped specialized center where they can get neonatal surgical procedures safely. In the main cities, we have a variety of qualified surgeons in most of the hospitals who can provide a variety of emergency neonatal surgical procedures, again pediatric anesthetic services are the biggest letdown for this we need to upgrade good specialized neonatal services to overcome the emergency neonatal transfer.

In the perioperative period of emergency neonatal surgery has the vulnerable risk of adverse events²¹ and a majority of technical and nontechnical events emerged during the perioperative period. Unavailability of small-sized catheters, intravenous cannula, different size endotracheal tubes, warm blankets, and infusion pump systems during anesthesia. These are confronted to safely anesthetize a neonate in peripheral hospitals. Pediatric anesthesiologists are one of the basic requirements that need to be implemented.

Our hospital still requires financial input for good perioperative care of surgical neonates. A peripheral and central neonatal hospital required a well-equipped facility that will allow good control of pain management postoperatively and a facility for total and partial parenteral nutrition. Our neonatal unit, presently working, needs to incorporate a highly equipped neonatal post-operative surgical intensive unit that gives improve outcomes. Our dedicated medical staff in the overburdened ward is a standpoint, and our neonatal surgical team's clinical acumen needs to be further developed.

Neonatal transport availability will be effective in decreasing mortality & morbidity. Applying the basic referral principle is not a hindrance in a less resource environment.²¹ a positive change in attitudes, hardworking, uplift clinical acumen, and knowledge, for the neonatal needs to be developed in the nursing professionals to go an extra length in services to handle the known obstacles.

CONCLUSION

Neonatal surgery in an emergency at our hospital is affiliated with moderate morbidity and mortality rate as compared with other developing countries. Overcome the difficulties and challenges relevant steps need to be taken for a better outcome. To uplift the neonatal emergency services to a satisfactory level with a poor resource environment requires a rightful allocation of the resources to develop neonatal-friendly infrastructure.

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