

PAEDIATRIC DAY CASE SURGERY: 3 YEARS EXPERIENCE AT PRIVATE MEDICAL CENTRE

Muhammad Uzair¹, Muhammad Khan Wazir², Riaz Ahmed Khan Afridi³, Fazle Ghani⁴, Mohammad Ishaq⁵, Mussarat Hussain⁶

ABSTRACT

Objective: To know the feasibility of day case surgery in pediatric surgical cases in terms of cost effectiveness, less hospital stay, utilization of hospital resources and parents acceptability.

Materials and methods: This prospective descriptive study was conducted in two private medical centers over a period of three years from April 2012 to April 2014. All paediatric patients from neonatal age to 15 years of age and those who fulfilled the inclusion criteria of the study were included in the study. After explaining the whole protocol of the day case surgery, benefits versus risks of the procedure, informed written consent were taken from the parents. All the parents were interviewed, detail history taken and a thorough physical examination carried out. Parents were instructed for nil by mouth before surgery and after surgery before leaving the hospital. The parents were briefed about post-operative care at home like feeding, ambulation and use of analgesics. All operations were carried out by same surgeon. After surgery and recovery from anesthesia these patients were observed till fully conscious and alert. A contact telephone number was also provided to the family for any difficulty or emergency. Follow up schedules were on 10th post op day and whenever needed in case of any emergency. Statistical analysis was made by spss version 20.

Results: A total number of 376 patients were studied during study period. Male to female ratio was 3.5:1. Congenital inguinal hernia and hydrocele were the most frequent indications 58.5 % (220) for surgery followed by undescendant testes 8 % (30) and bleeding per rectum 6 % (24). Majority of the parents were satisfied with the patient post operative management at home and only 5.3% parents contacted the primary surgeon for any patient related concern on telephone. Patient irritability due to pain was the most frequent problem for primary surgeon contact. Mild superficial skin infection were the most frequent complication noted on follow up visits. No mortality noted during study period and a single patient re admission and re examination under general anesthesia for bleeding per rectum secondary to spontaneously avulsed rectal polyp were noted. Overall parental satisfaction was 88% and cost effectiveness was 67% in day care surgery. Decreased nursing care costs, doctor visits and hospital resources utilization were significantly low in day care surgery.

Conclusion: Day care surgery is a safe option in selected paediatric surgical patients. It is cost effective, have maximum parental satisfaction, reduced hospital bed occupancy and improve the hospital care for major elective surgical cases in terms of relaxation of operation waiting lists and good nursing care for less number of patients.

Key words: Day-case surgery, parental satisfaction, Children

INTRODUCTION

The terms day surgery, ambulatory surgery and outpatient surgery are used synonymously to describe

¹ Department of Paeds Surgery, Nowshehra Medical College Nowshehra

² General Surgery, Peshawar Institute of Medical Sciences Peshawar.

³ Plastic Surgery Nowshehra Medical College Nowshehra

⁴ General Surgery, Nowshehra Medical College Nowshehra

⁵ Orthopaedic surgery, Nowshehra Medical College Nowshehra

⁶ General surgery Bacha Khan Medical complex Mardan

Address for correspondence:

Dr. Muhammad Uzair

Department of Paeds Surgery, Nowshehra Medical College Nowshehra

Cell No.03459087189

E-mail: uzair.shinwari@gmail.com

non-emergency surgery performed on carefully selected patients who are discharged home after recovery from anaesthesia on the same day¹. A Scottish surgeon Nicoll first introduced the concept of outpatient surgery in 1909 in Glasgow². As paediatric surgery developed, there was a better understanding of the disease process and patho-physiology of several surgical conditions in children; more operations were gradually added to the list of possible day care cases³.

Its benefits include improved utilization of hospital staff and beds, cost saving, early ambulation, decreased probability of nosocomial infection, less emotional stress for the child, reduced disruption of family unit and decreased separation anxiety⁴⁻⁸. At least 60 per cent of pediatric operations are done as day surgery internationally¹. In developing countries poverty makes the need for Day Case Surgery more relevant.² Studies have shown that there is a unit cost saving of between 19-68 %, depending on the operation performed⁹

The general observation that children achieve better convalescence in the home environment supports the need for adoption of day case surgery, which is gaining considerable acceptance in developing countries. Paediatric surgical service is in great demand in developing countries where in-patient beds and surgical supplies are insufficient⁷⁻⁹.

In current study, we address the importance of day case surgery keeping in view of the poor socio-economic status of our country with limited resources, heavy waiting lists for elective simple paediatric surgical procedures which can be done as day case surgery in order to have decreased burden on the country economy and well being of the community.

MATERIALS AND METHODS

This descriptive study was conducted in two private medical centers over a period of three years from April 2012 to April 2015. These centers having optimal facilities of anesthetists, operation theatre and staff facility with post operative adjacent recovery area and postoperative care team till discharge of the patients back to home. All these patients were filtered one day prior to operation for general physical examination, for general anesthesia fitness and surgical plan discussed with parents. Informed written consent was obtained from parents. Patients fulfilling selection criteria were admitted for day case surgery.

Patients selection criteria

All pediatric elective patients with age range from 7 days to 15 years of age of either gender, no major congenital cardiac anomaly, respiratory tract infection or major systemic illness. The procedure should not prohibit the patient from resuming oral intake within a few hours. Operations should preferably not go beyond one hour duration. Surgical procedure involving excessive blood loss or postoperative severe pain should be excluded. Patients living far from the day surgery centre or have no easy means of transport. Patients with ASA class 1 or 2 were enrolled for the procedures, operation which does not involve the opening of abdominal cavity.

All these patients were kept nil per oral according to protocol. Complete blood count for anemia exclusion and HbsAg and antiHCV were done. Anesthesia given according to nature and duration of the operative procedure. General mask inhalational anesthesia with halothane, isoflurane i/v ketamine, endotracheal tube anesthesia or local anesthesia with lignocaine was used. All the procedures were performed by single surgeon. After operation, all patients were kept in the recovery room under observation of the nurse on duty who monitored the vital signs. Once they were awake and stable, after check up by anesthetist, they were shifted to the care of their parents in a waiting area adjacent to the operating room. Before leaving the hospital, parents were further instructed for post-operative

care at home, like feeding, ambulation and use of oral medications. A telephone number of operating surgeon was also provided to contact in case of any difficulty or emergency. Review visits were scheduled on 10th post op day for stitches removal, detail questionnaire about patient condition after surgery, any complication and cost estimation of the procedure. All the relevant record were noted. Data were analyzed by SPSS version 20.

RESULTS

A total of 376 patients were enrolled during study period. 317 (84%) were male and 59(16%) were female patients. Male to female ratio was 5.3 :1. Age range of the patients were 7 days to 15 years.

Mean age was 5.3 years. Yearly Day case data show 93(25%) cases were enrolled in first year of study, 125(33.2%) patients in 2nd year and 158(42%) in the last year of the study. Congenital inguinal hernia and hydrocele were the most frequent indications 58.5 % (220) for surgery, followed by bleeding per rectum 8 % (30) and undescendant testes 6 % (24). Male predominance seen in inguinal hernia presentation with male to female ratio of 6:1, various procedure performed with gender distribution is given in the table no.1.

Parental satisfaction was satisfactory, keeping in view cost of the surgery, decrease in number of off hours from duty, and minimal disturbance of parents daily activities. Most of the early post operative parental complaints were solved by counseling, by primary surgeon on telephone. Overall parental satisfaction was 88%. The most frequent post operative parent concern of the parents was post operative pain in the first 8 hours of post operative period which was solved by parental counseling by the primary surgeon and advice of oral ibuprofen and paracetamol proper intake. Superficial skin infection was the most frequent complication 1.5%(6) observed during follow up visits and was treated by frequent dressings and oral antibiotics, none of these patients needs re hospitalization. A single patient readmission and reexamination under general anesthesia for bleeding per rectum secondary to spontaneously avulsed rectal polyp during examination under anesthesia by primary surgeon were noted, which was managed by re suturing of the bleeding site. Overall parental satisfaction was 88% and cost effectiveness was 67% in day care surgery. Decreased nursing care costs, doctor visits, and hospital resources utilization were significantly low in day care surgery.

In current study the average cost saving per procedure including all costs was about Rs 5500(53\$) and overall cost saving of all the procedure was Rs 2068000(19884\$). This saving cost is a significant amount in a society where labor gets Rs 15000(144\$)/month. In this study maximum time spent from hospital admission till discharge of the patient was 3-4 hours.

Table 1

Surgical procedure performed	Male	Female	Total
Herniotomy	113(30%)	22(5.85%)	135(35.85%)
PV ligation	83(22.07%)	2(0.53%)	85(22.70%)
Bleeding per rectum	18(4.78%)	12(3.19%)	30(7.97%)
Undescendant testes	24(6.38%)	nil	24(6.38%)
Superficial skin abscess incision drainage	11(2.92%)	9(2.39%)	20(5.31%)
Lymph node biopsy	12(3.19%)	6(1.59%)	18(4.78%)
Hypospadias repair	22(5.85%)	nil	22(5.85%)
circumcision	21(5.58%)	nil	21(5.58%)
Meatotomy	8(2.12%)	nil	8(2.12%)
miscellaneous	5(1.32%)	8(2.12%)	13(3.44%)
Total	317(84.30%)	59(15.69%)	376(100%)

DISCUSSION

The normal trend of day surgery in U.K, currently involves admission, investigation or treatment, and discharge of suitable patients within one working day; they have increased their surgeries to almost 80%¹². Advances in anesthesia are the major reasons for the safety and success of outpatient surgery in young children, especially in neonates¹³. The general observation that children achieve better convalescence in the home environment supports the need for adoption of day case surgery, which is gaining considerable acceptance in developing countries.

Pediatric surgical service is in great demand in developing countries, where in-patient beds and surgical supplies are insufficient. In our study superficial wound infection was the most frequent complication noted in 6 patients(1.5%), the results can be compared with other local and international studies as reported by El Shafie et al¹⁵ and P Mandhan et al¹⁶. Post operative pain was the most frequent reason of parental contact to primary surgeon on telephone, this complaint was noted in verbally active younger children 12(3.1%) and irritability in infants and neonates 15(3.9%), similar observation was noted by Abdur-Rehman LO et al¹⁴.

It has been claimed that parents' satisfaction is based firmly on their expectations and that those expectations vary substantially as a function of background and demographic factors¹⁷. Overall parental satisfaction for day care surgery in our study was 88%, this findings supports the findings of other series like Hicklin et al, 87%, Callanon et al, 70%^{18,19}.

As a developing country like Pakistan we have shortcomings in our infrastructure of the day care surgical centers, like deficient. separate waiting areas, play room for children, separate secretarial and nursing facilities which needs to be improved to achieve improved parental satisfaction for day care surgery.

For selected day case pediatric surgical patients day case surgery has demonstrated economic advantages in that it lowers the cost of hospital care^{20,21} In our study the total cost savings for the whole group of patients was RS.2068000(19695.23 \$) and RS.5500(52.38\$) per case. Most of the costs in our study were not related directly with the surgery, the traveling expenditure, parents off hours from their works/jobs, and foods expenses in case of parents of distant areas. Same experiences were shared by Evan RG et al²⁰. This is a significant amount of saving keeping in view of the poor socioeconomic status of our country. Since our country is a developing country and having an increase in paediatric population for the last few decades. The non availability of trained manpower, lack of proper infrastructure, scarcity of health related funds, and current wave of terrorism put the dire needs of day care surgery because day case surgery can address these problems effectively and can relax ongoing burden on health care facilities.

CONCLUSION

Day case surgery in paediatric surgical patients is a safe, economical and feasible option in developing countries where skill medical professionals, health related funds, hospital beds availability and poor socio-economic status of the parents are major problems and these problems can be easily address by practicing day case surgery.

Approximately 60% of paediatric surgeries can be performed safely as day case surgery. Proper selection of patients, pre and post op parental counseling and advances in anesthesia care are the corner stone of good outcomes in day care surgery

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