Research Article

Evolvement of Day Care Orthopaedic Surgery in a Tertiary Care Teaching Institute

Aniruddh Dash[1,*], Jitendra Narayan Senapati[2], Mahesh Chandra Sahu[3]
[1]Dept of Orthopaedics, IMS and SUM Hospital, Siksha O Anusandhan University, K 8, Kalinga Nagar, Odisha, Bhubaneswar, India.
[2]Dept of Surgery, IMS and SUM Hospital, Siksha O Anusandhan University, K 8, Kalinga Nagar, Odisha, Bhubaneswar, India.
[3]Central Research Laboratory, IMS and SUM Hospital, Siksha O Anusandhan University, Kalinga Nagar, Odisha, Bhubaneswar, India.
***Corresponding author's E-mail:** anirortho@gmail.com

Accepted on: 13-12-2015; **Finalized on:** 29-02-2016.

ABSTRACT

Day care surgery is now well established worldwide, but is just being established in India. In this paper is documented the efficacy of day care surgery in Orthopaedics. The objective of the study is to study the feasibility of day care surgery in orthopaedics in an Indian scenario. All the demographic data of patients who attended orthopaedic OPD were documented. The number of surgery carried out in IPD and Day care surgery were also documented. In a 4 year retrospective study, 201857 OPD patients attended the OPD of orthopaedic department. 10522 patients were treated in IPD and 1912 patients were treated in day care surgery. Day care orthopaedics surgery in India is feasible and desirable. With care and proper preparations, complications are few. This eases the load on the main orthopaedic operation theatre.

Keywords: Trauma patients, Day care surgery, Orthopaedics, Fracture fixations.

INTRODUCTION

Outpatient surgery, also known as ambulatory surgery, same-day surgery, day care, or day surgery, is a surgery that does not require an overnight hospital stay. The purpose of outpatient surgery is to keep hospital costs down, as well as saving the patient time that would otherwise be wasted in the hospital. Outpatient surgery has grown in popularity due to the rise in outpatient surgery centres and improved technology. With shorter medical procedure duration and fewer complications it makes sense to let patients go home sooner. The health care system has faced several developments and changes in the last two decades. At present health care system is being motivated by factors such as financial management, patient satisfaction and time management. Recent studies have indicated that day care surgery or ambulatory surgery (AS) can offer significant advantages over inpatient surgery.[1] In the USA, it is estimated that around 60% of nonsurgical and surgical procedures are performed as day care.[2] The increased outpatient procedures or day care surgeries has largely been motivated by advances in medical technology and changes in payment process, which have allowed the ambulatory/outpatient surgery to become more lucrative in recent years.[3] In medical insurance driven health service areas such as the USA, there has been increase from 35% in the 1970s to now 95% payers who cover day care surgeries.[4] In India day care surgeries are still a new concept in health care.[5] Elective surgical procedures in selected patients can be performed easily and patients can safely return home on the same day. This saves time and finances of the patients and their families as well as decreases the burden on tertiary hospitals. The aim of the present study is to retrospectively analyze the type of patients attending the OPD and subsequently admitted in IPD for various surgical procedures performed in the Orthopaedic department in a tertiary care teaching institute.

MATERIALS AND METHODS

Out of 201,857 OPD patients, 10,560 patients were admitted to the inpatient department for surgery. Apart from these, 1912 patients underwent day care surgery under local anaesthesia in the Orthopaedic Department of IMS & SUM Hospital, Bhubaneswar. This study was carried over a period of four years. The procedures done as day care surgery under local anesthesia are k-wire fixation of small bones, release of trigger finger, removal of foreign bodies, release of carpal tunnel, de Quervain's release and excision biopsy. An intravenous cannula was inserted in the operating theatre and then the patient was scrubbed and draped. The skin was infiltrated locally using 2% lignocaine circularly around the operation area. Depending on the depth of incision to deep tissue, lignocaine was also infiltrated deeply.

Care was taken to avoid injection into a vessel by withdrawing the plunger of the syringe once the needle is in the tissues. After the surgery, patients were closely monitored in the post-anesthetic care room where pulse oximetry, electrocardiography, and non-invasive blood pressure monitoring were applied. If the patient conditions were stable, they were discharged to the waiting area.

Then the patients were encouraged to resume feeding and were mobilized under observation. After two hours of surgery, patients were assessed by surgeon and subsequently discharged home after taking notes on postoperative nausea and vomiting, post operative pain requiring parenteral analgesics, difficulty in movements.

Then the data regarding age, gender, literacy, socioeconomic status and complications were collected and analyzed with the help of Microsoft excel.

RESULTS

In 4 years retrospective study, 201857 patients were enrolled. Among them 10560 and 1912 patients were admitted in IPD and day care respectively. It was observed that the number of the patients attending the OPD has increased leaps and bounds. Similarly, admission into the IPD department also showed an exponential growth. Male patients outnumbered the females throughout the study. Maximum numbers of the patients who attended the OPD belonged to the age group 19-60 years. It was seen the number of the trauma patients was on the higher side as compared to the diseased patients (Table 1).

Various types of orthopaedic surgical procedures are being undertaken in our hospital. Among them, fracture fixation cases take a lead role as compared to others. Adequate precautions taken while performing the surgery have helped to keep the complications at a low level (Table 2). Gradual shift towards day care surgery has proved to minimize the complications further, which has ultimately benefited the patients comprehensively. Among the day care orthopaedic procedures, maximum numbers of small bone fracture fixations were done (Table 3). The demographic data of all patients were documented and it was found that number of illiterate and patients below the poverty line were more. In marital status, it was seen that more number of unmarried patients were treated. Since our hospital is a tertiary care teaching institute, we receive a large number of rural patients who seek specialized treatment because of poor primary health care system (Table 4).

DISCUSSION

In our study, we noted that 1912 of day care surgeries were carried out at department of Orthopaedics in our hospital. Where as in the department of general surgery, it is 50% in Finland, 45% in England, 40% in Netherlands, 30% in Italy, 20% in Belgium and 25% in Hong Kong.[6,7] This is a credit to the fact that inguinal hernia repair performed as a day care had low rate of complications.[8,9] In our study also we did not find any mortality in non-traumatic cases. In our study spanning over a period of four years, we performed only 15.37% day care surgeries in our Orthopaedics department. Compared to Europe and USA studies our performance is low. Our study has established that day care surgeries can be performed with very low morbidity and no mortality in India. In the present scenario day care surgeries play a vital role in the health care delivery system and it will be an integral component of health care in the future. A day care surgery places different demands on various skills of each specialty (surgical and non-surgical) involved and especially requires special effort in anaesthesia and nursing care. It is increasingly seen as a better option with lesser difficulties for patients with ambulatory surgeries compared to inpatient surgeries. Worldwide, the surgeons are geared to counsel patients to undergo day care surgeries and health care providers have started creating the environment conducive for day care surgeries in all specialities. Carey noted in his study the emergence of day care surgeries which are like “focused factories’, specialized in treatment of specific diseases meted as a single line of service.[10] The advantage of day care surgeries are that they have higher efficiencies and lower costs, with ease of hospital accommodation and lesser time spent in waiting. Day care results indicate quicker and faster recovery. Patients can easily return to their normal environment i.e., return home and do their daily activities. The major advantage is reduced risk of cross-infection or hospital acquired infections and minimal anaesthesia related complication. Day care surgeries are comparatively inexpensive and affordable in all socioeconomic classes. Another benefit for the patients is the possibility to book a procedure in advance for surgical procedure without the fear of cancellation of surgery due to emergencies or shortage of beds in hospitals. Health care providers benefit from day care procedure for patients as the turnover is faster and more patients can be accommodated with reduced waiting lists. Surgeon’s satisfaction being very high, they can rapidly provide high quality care for appropriate patients and plan surgical procedure according to their needs and allot only major surgeries as inpatients. The drawback of day care surgeries are that only selective cases can be performed and most of them are elective and not emergency cases. As in cases of planned surgeries, it is required for patient or patients’ relatives to be aware of the surgery or procedure and care required within the first 24–48 hours after surgery at home, especially in children and elder age group. Another drawback is large number of patient admitted in outpatient department make it difficult for surgeon to separate the patients into those fit for day care surgery and patient counseling. The patients’ factors play an important role in day care surgery like age and sex. After surgery patient follow up is required up to 7 days with easy access and if required repeat hospital visit for any adverse reactions. Indian Association of Day Care Surgery stared in 2003 but still it is in its infant stage. The major reasons seem to be a lack of awareness of the facilities among patients and their relatives, fear of complications, distance of hospitals from their residence as well as lack of health professionals geared to offer these procedures. Health insurance companies in India also lack the insight to provide for day care surgeries and insist on more than 24 hours admission to avail the claim. In USA and Europe, the successes of day care surgeries have helped in including them under insurance coverage without any payment obstacles. India is a large country with limited health care resources catering to a huge population. There is an immediate need for more dedicated day care centers for rapidly helping the patient load. There is also a requirement for increasing awareness programs for

patients and health care providers in the Indian sub content. The appropriate training should be initiated early in the medical colleges with frequent CME (continuing medical education) programmes for doctors and other health care personnels. It also goes to show that cross patient infection is minimized when patients are treated outside the hospital wards.[11]

However, without exception, all cases of open reduction were discharged on antibiotics.[12] There were more metals removed from the lower limbs than the upper limbs. There are two possible explanations.[13,14] Most upper limb fixations especially in the fingers were done with Kirschner wires and are usually pulled out in the clinic. The lower limb fixations are mostly done as major undertakings and metals cannot be removed in the clinic. Secondly major fixations affect the lower limb more than the upper limb.

Table 1: Load of orthopaedic patients in our tertiary care hospital

Year	No of Patients	Gender		Age group			Patient complaints		IPD	Benefited patients (%)
		M(%)	F(%)	<18 (%)	19-60 (%)	>60 (%)	Disease (%)	Trauma (%)		
2012	30,196	52	48	16	57	27	42	58	1950	76
2013	53,675	53	47	14	52	34	48	52	2298	79
2014	57,786	56	44	13	51	36	47	53	2876	79
2015	60,200	59	41	15	55	30	44	56	3436	84
Total	201,857								10,560	

Table 2: Types of surgery involved in IPD patients

Year	No of Patients	Gender		Types of surgery							Complications	Benefited patients
		M(%)	F(%)	A	B	C	D	E	F	G		
2012	1950	63	37	1105	41	77	22	59	71	575	315 (16.15%)	1820(93.33%)
2013	2298	66	34	1333	66	91	45	94	89	580	360(15.66%)	1970(85.72%)
2014	2876	69	31	1594	98	149	64	111	166	694	412(14.32%)	2236(77.74%)
2015	3436	67	33	1677	120	297	77	139	204	922	526(15.30%)	3012(87.66%)
	10560			5709	325	614	208	403	530	2771		

Note: A; Fracture fixation, B; Arthroplasty, C; Arthroscopy, D; Spine surgery E; Hand surgery, F; Paediatric orthopaedic surgery, G; Others include tumor surgery, deformity correction.

Table 3: Load of daycare orthopaedic surgery in our hospital

Year	No of Patients	Gender		Types of surgery							Complication	Benefited patients
		M	F	a	b	c	d	e	f	g		
2012	211	51	49	61	18	23	31	13	44	21	21 (9.95%)	201 (95.26%)
2013	315	53	47	87	36	41	54	37	39	21	27(8.57%)	299 (94.92%)
2014	598	59	41	144	68	71	86	87	88	54	49(8.19%)	573 (95.8%)
2015	788	66	34	201	98	85	111	102	115	76	56(7.10%)	754 (95.6%)
	1912			493	220	220	282	239	286	172		

Note: a; CMUGA±K-wire fixation, b; Implant removal, c; excision of cyst/lump, d; trigger finger release, e; de Quervain's release, f; Foreign body removal, g; Carpal tunnel release

Table 4: Demographic data of the patients involved the study.

Year	Number of Patients	Location		Marital status		Co-morbid condition		Literacy		BPL	
		Rural	Urban	Married	Un-married	Y	N	Y	N	Y	N
2012	30,196	16524	13,672	18522	11,674	11311	18,885	16211	13,985	18519	11,677
2013	53,675	28311	25,364	19793	33,882	13519	40,156	26915	26,760	30212	23,463
2014	57,786	28524	29,262	26322	31,464	17674	40,112	30312	27,474	33624	24,162
2015	60,200	33700	26,500	31724	28,476	26212	33,988	33619	26,581	36812	23,388
Total	201,857	107,059	94,798	96,361	105,496	68,716	133,141	107,057	94,800	119,167	82,690

Note: BPL-Below poverty line

CONCLUSION

Day surgery is feasible and desirable in urban centres in India and should be exploited further to help ease congestion in our hospitals. This study shows that with adequate preparations and proper preoperative planning much orthopaedic surgery can be done in day care setup and is safe and mutually beneficial both to the patients as well as the health care set up.

REFERENCES

1. Abusalem OT, Day case versus inpatient surgery in Gaza Jordanian Military Field Hospital, Rawal Medical Journal, 37, 2012, 421–424.
2. Farhan H, Moreno-Duarte I, McLean D, Eikermann M, Residual Paralysis, Does it Influence Outcome After Ambulatory Surgery? Curr Anesthesiol Rep, DOI 10,1007/s40140-014-0073-6.
3. Sharmitaro A, Scilcr R, Outpatient Surgeries Show Dramatic Increase, Health Capital Topics, 2010, 3.
4. Glass PSA, The future and safety of ambulatory surgery, South Afr J Anaesth Analg, 20, 2014, 59–61.
5. http,//www. iaas-med.com/files/Journal/March10/ROW,pdf accessed date 10,08,2014.
6. Saia M, Mantoan D, Buja A, Bertoncello C, Baldovin T, Zanardo C, Callegaro G, Baldo V, Increased rate of day surgery use for inguinal and femoral hernia repair in a decade of hospital admissions in the Veneto Region (north-east Italy), a record linkage study, BMC Health Serv Res, 2013 Sep 12, 13, 349, doi, 10,1186/1472-6963-13-349.
7. http,/ /www. Euro. Who.int/__ data/assets/pdf_file/0011/108965/ E90295, pdf accessed date 12.08.2014.
8. Ramyil VM, Iya D, Ogbonna BC, Dakum NK, Safety of day care hernia repair in JOS Nigeria, East African Medical Journal, 77, 2000, 326–328.
9. Goyal P, Sharma SK, Jas KS, Comparison of inguinal hernia repair under local anesthesia versus spinal anesthesia, Journal of Dental and Medical Sciences, 13, 2014, 54–59.
10. Carey K, Burgess JF Jr, Young GJ, Hospital competition and financial performance, the effects of ambulatory surgery centers, Health Econ, 20, 2011, 571–581.
11. Gakuu LN, Surgical wound infections, their causes and management, East, Afr, Med, J, 7, 2005, 329-330.
12. Usang UE, Sowande OA, Adejuyigba O, The role of pre-operative antibiotics in the prevention of wound infection after day case surgery for inguinal hernia in children in Ile Ife Nigeria, Paediat, Surg, Int, 24, 2008, 1181-1186.
13. Karol LA, Perspectives on modern orthopaedics surgical management of the lower extremity in ambulatory children with cerebral palsy, J, Amer, Aca, Ortho, Surg, 12, 2004, 196-2003.
14. Depreitere B, Lumbar microdiscetomy in a day surgery setting, Surg, Neur, 71, 2009, 140.

Source of Support: Nil, **Conflict of Interest:** None.