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MEDICAL AUDIT OF PATIENT'S RECORD OF TOTAL HIP REPLACEMENT IN A TERTIARY CARE TEACHING HOSPITAL

Orthopaedics

Dr Rajnand Kumar Associate professor, Department of Orthopedics, All India Institute of Medical Sciences, Gorakhpur,UP, India

Dr Nitish Kumar* Assistant Professor, Department of Orthopedics, All India Institute of Medical Sciences, Gorakhpur, UP, India. *Corresponding Author

Dr. Ajay Bharti Professor and Head, Department of Orthopaedics, AIIMS Gorakhpur

Dr. Sudhir Shyam Kushwaha Assistant Professor, Department of Orthopaedics, AIIMS Gorakhpur

Dr. Vivek Kumar Assistant Professor, Department of Orthopaedics, AIIMS Gorakhpur

ABSTRACT

Introduction : Medical records are an important piece of document which ensure quality patients care by lisoning among multiple health care providers apart from helping in obtaining licences and accreditations. Medical audit is a systematic review of medical care in order to identify opportunities for improvement and provide a mechanism for its achievement. Arthroplasty surgeries are skilled procedure requiring meticulous planning and its execution viz-a-viz documentations of care involved to mitigate any litigation. **Methodology :** The observational retrospective descriptive study of 140 patient's record was done by including 24 questions of standard documentation practice in arthroplasty surgeries after pre-testing and validation of check list. **Observations :** Apart from vitals recording and follow-up advice, none of the parameters were 100% documented leaving scope for improvement. **Discussion :** Audit is continuous process of improving patient's care and is to be done at regular interval. In arthroplasty surgeries the documentation of every step is necessary for patients care and safeguarding the operating surgeon from future litigations. The place of study been recently commissioned must audit its record in the phase of its development so that better practices could be imbibed in its routine practices. **Conclusion :** Some of the aspect of record keeping was within the prescribed standard practices but there is scope for improvement

KEYWORDS

Medical Record, Medical Audit, Bed Head Tickets, Arthroplasty

INTRODUCTION

Medical record is the most important document in any hospital which helps in planning and executing patient's care. It provides continuity of treatment among multiple health care providers[1]. The overall quantum of care provided to the patients depends on quality and clarity of information's recorded in the Bed Head Tickets (BHT)[2]. Inadequate communication between different health care professionals can lead to discontinuity in care as well as errors in the treatment. This may result in increased treatment cost, lengthy hospital stays, frequent readmissions, patient dissatisfaction, delays and mistakes in treatment and diagnosis.

In addition to providing care to the patients the updated and complete healthcare record is must for obtaining licences and accreditations. Proper recordkeeping is also essential for administrative purposes and settling legal claims. For exceling within the healthcare system, it is of utmost important that the records are maintained up to date as for the industrial norms and systematically evaluated to emphasise the role of the medical record in reducing medical errors and increasing effectiveness of services delivered[3].

Medical audit can be defined as systematic approach to peer review of medical care in order to identify opportunities for improvement and provide a mechanism for realizing them[4]. It is a process used by health professionals to assess, evaluate and improve care of patients in a systematic way. It helps in comparing own status of care in relation to the standard practices. The responsibility of conducting fare audit lies with the doctor and not with the administration. The focus of audit should be on the process and result of the care and not on how the resources are utilised. The process of medical audits is more systemic and formal than the ward rounds but both are aimed towards better patients care and teachings. The terms medical audit and clinical audit are often used interchangeably, but clinical audit might be considered to cover all aspects of clinical care. Auditing process should be transparent and non-judgmental.

Arthroplasty surgeries are highly skilled surgery requiring extensive pre-operative planning, accurate placement of prosthesis during surgery and patient's specific post-operative rehabilitation. At each level of patient's treatment, careful and complete documentation is paramount for optimal outcome of surgery. Apart from surgical outcome the proper documentation is also important for developing arthroplasty registry, research and medico-legal cases

The place of study was recently commissioned and the facilities are still evolving hence it is important to critically appraise own work at the time of its evolution so that good practice can be incorporated in day-to-day care of arthroplasty patients. The medical audit of patients who underwent total hip replacement at this institute is planned to assess quality of record keeping as per the standard protocol and to assess any scope of improvement. Hence this study.

METHODOLOGY

The observational descriptive study of medical records of patients who underwent total hip replacement at a tertiary care university level teaching institute was done in the Department of Orthopaedics and Medical Record Department (MRD). The data of all the 140 patients who were operated with total hip replacement till the time of completion of this study were collected retrospectively from the medical records.

After detail discussion among faculties and residents a total of 24 questions of standard documentation practice in arthroplasty were included for data collection. The pre-testing of the tool was done by senior most faculty of the department. This tool was also shared with three independent arthroplasty surgeons outside the institute for validation and input. After pre-testing and validation, the check-list was used to obtain data (Table – 1). The study was done after obtaining ethical clearance from Institutional Human Ethics Committee.

Table - 1

Data Collection Sheet

Sl.no.	Heading	Remarks	
1.	Name		
2.	Age/sex		
3.	Date of admission		
4.	Initial Diagnosis		
	Whether written on OPD Slip	Yes	No
5.	Surgical Plan documented on OPD Slip	Yes	No
6.	Complete initial assessment and history in BHT	Yes	No
7.	Documentation of surgical plan in BHT	Yes	No
8.	Patient specific diet plan	Yes	No

9.	Co-morbidity (If any)			
10.	Patient specific pre-op order (as per co-morbidity)		Yes	No
11.	Date of surgery			
12.	Consent form (clearing mentioning site and planned surgery)		Yes	No
13.	Pre-operative templating		Yes	No
14.	Operative notes mentioning size of components.		Yes	No
15.	Implant sticker on operative notes, admission ticket and discharge paper		Yes	No
16.	Drain Inserted		Yes	No
	If yes, daily drain output mentioned in BHT		Yes	No
17.	Blood transfusion		Yes	No
18.	Types of antibiotics given			
19.	Total duration of antibiotic			
20.	Progress Notes	Patient's identifier on every page	Yes	No
		Date and time	Yes	No
		Vitals recorded	Yes	No
		Wound description	Yes	No
		Signature with name	Yes	No
21.	1st post-operative dressing done on			
22.	Total dressing done during stay			
23.	Duration of Stay			
24.	Post-operative complication			
25.	Advice at discharge	Drug advice with duration	Yes	No
		Advice for mobilization	Yes	No
		Discharge summary in BHT		
		Dietary advice	Yes	No
		Follow-up advice	Yes	No

OBSERVATION

In our study the mean age of the patients was 44.48 ± 15.26 years having age of youngest patient of 22 years old and oldest was 67 years of age. The study population had 71.42 % male and 28.57 % female. Avascular Necrosis of the hip (40%) was the most common diagnosis, followed by Arthritis of the hip joint (25.7%), Ankylosing spondylitis (20%), Non-union fracture neck of femur (8.57%) and fresh fracture neck of femur (5.71%). The pre-operative diagnosis was documented in 85.71% and surgical plan was mentioned in 11.42% of the OPD Slips attached in the record. The OPD planning was not complete as to whether planned hip will be replaced with uncemented implant/cemented implant/hybrid etc. in majority of the files.

The assessment of patient's hip at the time of admission in standard format of gait, inspection, palpation, movements, measurement and special test was partially done in 37.12% of cases. No patient had complete documentation of hip examination. The documented surgical planning was found in 51.42% of the files.

Of the total study populations 28.57% patients had one clinical co-morbid condition and 22.85% had more than one co-morbidity. The distribution of different co-morbidity is documented in table -2.

The mean delay in surgery from the day of admission was 7.28±4.83 days with minimum delay of 1 day and maximum delay of 18 days. The delays were mainly caused due to unavailability of operation theatre and time required for optimising co-morbid conditions. When patients were taken for surgery, 80% of the file had consent form clearly mentioning the side and planned surgery. The operative record was found in all the patients but only 62.85% file had record of the size of different components used for replacing hip joint. It is common practice to paste implant sticker mentioning size and make of different component for future references. In our study we have found that 91.4% of the file had these stickers pasted on operative record form, admission tickets and discharge paper.

While drain was placed in 71.42 % of the patients its written record was missing in almost half of the patients in operative record form despite having one column in operative record form for writing drain/tubes inserted. Daily documentation of drain output in progress notes by treating doctors were missing in 76 % of the files in whom drain was inserted. The data for drain and its output were retrieved from the nursing record where it was maintained for all the patients.

There was no uniformity in duration and type of injectable antibiotics used in post-operative period. The mean duration of longest used injectable antibiotic of the combination was 7.48 ± 4.61 days with minimum duration of 02 days and maximum duration of 18 days.

The daily progress notes with details of patient on every page was present in 88.57% of the file. While 94.28% of the notes had date of putting notes, none of the files had time of putting notes in every progress sheets. Some of the files had time of putting notes during immediate post-operative period but it was inconsistent and not followed on every progress notes. In 100% of the progress notes had vitals recorded, however in majority on notes it was recorded as GC – Fair, Vitals – Stable. All the files had signature of doctor writing notes.

The mean duration of stay of the patients was 17.54±9.48 days with minimum of 05 days and maximum of 47 days. The patient who had stayed for 47 days had surgical site infection and he underwent sequential replacement of both the hip in one admission. The second hip was replaced after healing of surgical wound of first hip replacement.

All the patients had advice for drug with dose and duration in the discharge card. The observatory findings at the time of discharge are documented in table -2. All the patients were given instruction for subsequent visit with day and date mentioned on the discharge card.

Table – 2
Observation

Sl.no.	Heading	Findings	
1.	Age	44.48±15.26 years	
2.	Sex	Male	Female
		71.42%	28.57%
3.	Initial Diagnosis	Avascular Necrosis	40%
		Arthritis	25.7%
		Ankylosing Spondylosis	20%
		Non-union fracture Neck of femur	8.57%
		Fracture Neck of femur	5.71%
	OPD Slips with documented initial diagnosis	85.71%	
4.	OPD Slip with documented Surgical Plans	88.57%	
5.	Complete initial assessment and history in BHT	0.0% (Partial documentation in 37.12%)	
6.	Documentation of surgical plan in BHT	51.43%	
7.	Patient specific diet plan	22.85%	
8.	Co-morbidity	One co-morbidity	More than one co-morbidity
		28.57%	22.85%
		Hypertension	56 patients
		Diabetes mellites	28 patients
		Cardiac issues	10 patients
		Obstructive sleep apnoea	01 patients
9.	Patient specific pre-op order (as per co-morbidity)	62.85%	
10.	Admission to surgery delay	7.28±4.83 days	
11.	Consent form (clearing mentioning site and planned surgery)	80%	
12.	Operative notes mentioning size of components.	62.85%	
13.	Implant sticker on operative notes, admission ticket and discharge paper	91.4%	
14.	Drain Inserted	71.42%	
	If yes, daily drain output mentioned in BHT	24%	
15.	Types of antibiotics given	Pipracillin-Tazobactum	52 patients
		Cefeperazone - Salbatum	84 patients
		Amikacin	92 patients
		Metronidazole	36 patients
		Tigecycline	01 patients
16.	Total duration of antibiotic	7.48±4.61 days	

17.	Progress Notes	Patient's identifier on every page	88.57%
		Date	94.28%
		Time	0.0%
		Vitals recorded	100%
		Wound description	14.28%
		Signature with name	100%
18.	Documentation of 1st post-operative dressing.		11.42%
19.	Total dressing done during stay		5.71%
20.	Duration of Stay		17.54±9.48 days
21.	Advice at discharge	Drug advice with duration	100%
		Advice for mobilization	45.71%
		Discharge summary in BHT	14.28%
		Dietary advice	17.14%
		Follow-up advice	100%

DISCUSSION

Audit is an integral part of review process for continuous improving patient's care and must be done at regular interval. In last few decades the no. of cases of total hip replacement has improved significantly due to improved implant design and material used in the surgery and this requires patient's specific tailored approach for optimal outcome. Therefore, the documentation of each step is necessary not only for patients care but also to safeguard the operating surgeon from future litigations. In USA around 78% orthopaedic arthroplasty surgeons have been named as defendants in at least one lawsuit alleging medical malpractice[5]. With this background in the mind the current study was design to audit medical record of all the patient who underwent total hip replacement at our institute.

The pre-operative documentation had scope for lots of improvement. In around 11% OPD slip the surgical plan was not documented and effort should be made to have all the OPD slip with diagnosis and surgical plan written on it.

None of the BHT had complete documentation of examination finding as per the standard examination protocol. As pre-operative findings set the bench mark for comparison of post-operative outcome this should be considered as important piece of information for every patient who are planned for total hip replacement. The most common cause for litigation following total hip arthroplasty was nerve injury followed by limb length discrepancies[5]. Without pre-operative documentation of critical findings like amount of shortening, neuro-vascular status etc. the operating surgeon will not have any reference point for comparison after surgery. So, every patient needs to undergo complete examination with documentation of findings and attempt should be to have it for 100% patients.

The role of diet for controlling hypertension, diabetes mellitus etc. cannot be over looked in per-operative period. Similarly, requirement of high protein diet for operated patients to compensate for blood loss and early wound healing cannot to emphasised much. Though the diet management and maintenance of diet chart was primarily done by the nursing officers but instruction of specific diet should come from the treating doctor and it was found to be missing in more than 3/4th of the patients in current study population.

Pre-operative order cannot be made generalised and it has to be patient specific. It was found that in around 38% of cases the pre-operative instructions were not in line with patient's co-morbidity e.g. instruction to take anti-hypertensive with sips of water in the morning of surgery despite being instructed from the anaesthetist. These instructions not only make surgery safe but also helps in preventing unnecessary cancelation of schedule operation. The study by Patnaik S. et al[6] has reported the majority of cancellations were due to associated medical co-morbidity which were potentially reducible post-intervention and hence regular monthly audits should be done to minimise postponement of surgery.

The delay in surgery from the date of admission was significant with average delay in current study was 7.28±4.83 days with maximum delay was 18 days. These delays should be looked seriously as keeping patient waiting will decrease bed turnover and can be cause of significant financial burden on the health care system. In the study by Ravery AS et al[7] there could be multiple cause for delay like lack of operating room, anti-platelet therapy, pending investigations and many more. They have concluded that most delays to surgery are due to difficulties with operating theatre logistics and these can be improved by involving all participants in the surgical process. The patients with co-morbidities and those with chronic medicine intake should be maximally optimised prior to admission as to decrease delay in surgery.

The consent is the most vital document for any patient undergoing surgical intervention and it should include patient's details, diagnosis, planned surgery, site, likely complications etc. in the language which can be understood by the consenter and should be signed by both patient/relatives and treating doctor. In today's era of information, process of obtaining and documenting consent must be made transparent. Shetty PA et.al[8] has emphasised in their study for the role and challenges in audio-visual consenting and has concluded for wider advocacy of audio-visual consent. In this study valid consent required for arthroplasty surgeries was missing in 20% files and department needs no work on improving it have 100% file with valid consent.

The practice of writing implant size in operative notes and pasting implant sticker in file as well as on discharge slip is followed globally. This help patient in follow-up treatment from same as well as any other institute of their choice. Further as these surgeries are sometimes performed even in younger age groups like in cases of avascular necrosis, the chances of revisions surgeries are high. It is therefore important that details of make and size is documented in file as well as in discharge slip for planning revision. However, it was lacking in a significant no. of patients in the current study.

The American Association of Hip and Knee Surgeons in their annual meeting in 2021 has come up with some recommendation regarding prophylactic use of antibiotics in total joint replacements[9]. They have recommended first or second-generation Cephalosporin's as antibiotics of choice for prophylaxis. For high-risk patients use of dual antibiotics both Cefazolin and Vancomycin may be contemplated. The study did not suggest exact duration of prophylactic antibiotics, but have documented that there is emerging data which demonstrate no increased risk of perioperative joint infection in patients who did not receive postoperative antibiotics. It is necessary that department in liaising with institute infection control group should formulate own antibiotic policy for total joint replacement patients. In current study around 50% of the patients could be declared high risk group based on co-morbidity but as many as 40% patients have received dual antibiotics and 26% have received triple antibiotics. The duration of parenteral antibiotic use was also not uniform with minimum use was of two days and maximum 18 days, needs to made uniformed.

Every sheet of progress notes should have patient's details like name, age, sex, admission no. etc. in the column marked on the top for easy identification and preventing exchange with other patients. It should be followed by date and time of putting notes in left upper corner and diagnosis in the centre. The progress notes should have detail documentation of patient's vital parameters. In surgically intervened patients the progress notes should also contain wound descriptions, status of dressing, day & date of dressing, total no. of dressings, site of drain insertion, daily output from drains etc. All the instruction be clearly documented and changes be mentioned as fresh instructions. The progress notes should be singed at the end and the doctor signing it should put his/her name with designation. In current study there were several lapses like time of putting notes were almost missing, vitals in majority of the files were recorded as stable, wound descriptions were not complete, drain out-put were not recorded uniformly. Further in total joint replacement the progress notes should mention about neural status, limb length discrepancies, physiotherapy recommended, instruction of mobilisations.

Total duration of patients' stay was also an area for concern in the current study. Average stay was of around 18 days and it should be brought down for increasing bed turnover, so that bed utilization can be maximised.

The discharge slip reflects the quality of care provided at any health care institute in the form of summary. But in current study summary was missing in as high as 86% of the files. In home mobilisation of total joint replacement patients in post-operative period is cornerstone for

outcome by preventing dislocations. Dargel J et al[10] has reported up-to 17% chances of hip dislocation after total joint replacement if the instructions are not passed clearly.

CONCLUSIONS

It was found in this audit that some of the aspect of record keeping was well within the prescribed standard but there is still scope for improvement.

Recommendations

At the end of current study, it appears some improvement is required in the documentation to make it up to the accepted standard.

1. All OPD slip should have diagnosis and complete plan of surgery (cemented/un-cemented/hybrid replacement).
2. Initial assessment and complete examination of hip in standard format must be entered in the BHT at the time of admission.
3. Surgical plan, diet plan and patient's specific pre-operative order is must.
4. Every operating surgeon must check the consent paper for its completeness in line with the proposed surgery before operating any patients.
5. Attempt should be made to decrease waiting time for surgery for routine planned procedures like joint replacement by increasing infrastructure and optimising patient before admission. The total duration of stay at any hospital needs to be decreased for optimal utilisation of resources and increasing bed turn over.
6. Department in discussion with hospital infection control committee must device institute antibiotic policy which clearly mentioning type and duration of prophylactic antibiotics to be used.
7. Daily progress notes need to be standardised and every doctor should put signature and stamp clearly mentioning name and designation.
8. No discharge slip be signed without summary having all the events and treatment provided to the patients during their stay in the hospital

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