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REGIONAL ANAESTHESIA FOR ORTHOPAEDIC SURGERIES IN TERTIARY CARE HOSPITAL

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ABSTRACT

Regional anaesthesia is preferred for Orthopaedic surgeries as it provides post-operative analgesia and reduces intraoperative analgesic requirement. With availability of safer local anaesthetics, blocks can be given using anatomical landmark or peripheral nerve stimulator or USG. Block can be given along with general anaesthesia for patients who insists on it. This study was done in Orthopaedic operation theatre in tertiary care hospital. Anaesthesia records of all operated patients in last one year were studied. Total 724 patients were operated out of which 544 (75.07%) were males and 180(24.87%) were females. Paediatric patients were given general anaesthesia with blocks to avoid unpleasant memory of operations. Upper-extremity blocks are successful at hand of expert (86%).Upper limb surgeries were 270(37.29%) and lower limb surgeries were 422(55.96%). Total 38 cases were conducted under general anaesthesia. Lower limb surgeries were done under spinal, spinal anaesthesia +epidural anaesthesia,epidural anaesthesia or block.

INTRODUCTION

Orthopaedic surgeries are done under regional anaesthesia avoids the complications of general anaesthesia and provide postoperative analgesia. Administration of block using peripheral nerve stimulator or USG guided blocks or blind technique. In case of apprehensive or paediatric patient administering regional anaesthesia along with general anaesthesia reduce post operative pain and intraoperative analgesic requirement.

Record of Orthopaedic operation theatre of one year were studied.Regional anaesthesia has advantage like reduced stress response, less postoperative nausea and vomiting, early discharge, blood loss and transfusion requirements, reduced recovery time and cost (Anand and Jindal[1], 2009; Gonano et al[2]., 2006; Maurer et al[3]., 2007; Pavic et al.[4] 2011).

MATERIALS AND METHODS:

Orthopaedic anaesthesia records of one year were studied. Patient's data, type of surgery, location of surgery, type of anaesthesia was recorded. Spinal anaesthesia was givenusing 1.2 CC to 4 CC of 0.5% inj. Bupivacaine with 15 to 60 micrograms of fentanyl depending upon the type of surgery, patients built, age and other comorbidities. Inj. 0.75% Bupivacaine and inj. 2% lignocaine with or without adjuvants and diluted to 30 to 40 CC (volume differs in paediatric patient) depending upon the body weight of patient and type of surgery was used for giving block using peripheral nerve stimulator or by blind technique. Depending upon the type of surgery either interscalene or supraclavicular or axillary block was given. Patients who were high risk (ejection fraction less than 40%) and posted for lower limb surgeries,cases were done in our setup either using epidural anaesthesia or block for lower limb surgeries. Patients were explained the procedure and risk and benefits of giving block. After checking NBM status and consent, block was given using aseptic technique. Blocks can be given with mild sedation monitoring SPO2 of patient. In paediatric patient blocks are given under general anaesthesia.

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RESULTS

Distribution of patients according to sex

Total	Male	Female
724	544(75.07%)	180(24.86%)

Total 724 patients were operated in orthopaedic OT. Out of which 544(75.07%) were males and 180(24.86%) were females. 422(55.96%) were lower limb surgeries and 270(37.29%) were upper limb surgeries.

Distribution of patients according to age

Month	<20	20-40	40-60	60-80	>80
Total	37	203	345	120	19

Age of patient ranged from 2years till 88 years.

Distribution of TKR /THR patients according to age

Month	20-40	40-60	60-80	>80
Total	5	94	37	1

3patients were below 40 years of age and had avascular necrosis of hip following high dose or prolonged steroid therapy? Secondary to covid or RA.2 patient suffered from sickle cell disease.

Distribution of patients according to type of surgeries,

surgeries	TKR	THR	Upper Limb Scopy	Lower Limb Scopy	The With Scopy		spine	>Elbow	Elbow	<Elbow
total	100	37	21	34	8	5	8	69	14	98

3

Surg.	>knee	<knee	clavicle	M	F	PEAD	sa	Sa+ea	ea	Ga+B	block	ga
total	145	174	11	544	180	11	402	10	5	27	243	11

422 patients underwent lower limb surgery while 270 upper limb surgeries. Upper-limb surgeries can be done under regional block, regional block and general anaesthesia. Spine cases were done under general anaesthesia. In case of paediatric patient, apprehensive patients or inadequate action of block, patients were given general anaesthesia. Out of all upper limb surgeries,98(39.04%) surgeries were distal to the elbow and 153(60.95%) on/or above the elbow; while in the lower limb 174(41.23%) surgeries were done distal to the knee and 248(58.76%) on/or above the knee. Most surgeries in the upper limb were done under blocks. More surgeries in the lower limb were done under Spinal Anaesthesia. Total 100 Total knee replacement (TKR) and 37total hip replacement (THR) were done.21 and 34 shoulder and knee arthroscopies were done and no. of shoulder and knee arthroscopies with repair were 8 and 5 respectively. 8 spine patients were operated.11 patients had fracture clavicle.

DISCUSSION

Distribution of patients according to sex

Out of 724 patients 544 patients were men and 180 patients were female.

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Distribution of patients according to type of surgeries,

Out of total 422 patients undergoing lower limb surgeries total

402 patients were done in spinal using 1.2 to 4 cc of 0.5% Bupivacaine along with or without 15 to 60 mcg of fentanyl. In10 patients in whom surgical time was anticipated to be more epidural and spinal was given.In 5 high-risk patients, case was done only under epidural. In 5 high-risk patients, lower extremity block was given.Upper extremity blocks like interscalene, suprascapular,axillary blocks were given depending on type of surgery. General anaesthesia was given for spine, paediatric cases, apprehensive patients and when the action of block was inadequate. Number of upper extremity blocks given were270. All patients were explained about procedure and side effects and advantages. Patients who insisted on general anaesthesia or in whom action of block was inadequate were given general anaesthesia. Lower limb surgeries are usually done in spinal anaesthesia, spinal anaesthesia with epidural anaesthesia or epidural anaesthesia or regional block depending on duration of surgery and type of surgery and condition of patient. expertise of the anaesthesiologist, duration of theprocedure, surgeon's preference(Khanduri[5],2008;Clarke[6],2003; Schnittger[7],2007; Oldman et al[8]., 2004)

Out of all upper limb surgeries 98(39.04%) surgeries were distal to the elbow and 153(60.95%) on/or above the elbow; while in the lower limb 174(41.23%) surgeries were done distal to the knee and 248(58.76%) on/or above the knee. Most surgeries in the upper limb were done under blocks. More surgeries in the lower limb were done under Spinal Anaesthesia. Total 100 TKR and 37 THR were done.21 and 34 shoulder and knee arthroscopies were done and no of shoulder and knee arthroscopies with repair were 8 and 5 resp. 8 spine patients were operated.11 patients had fracture clavicle.

For paediatric cases we are giving supraclavicular or axillary block depending on type of surgery. Paediatric patients are given block after giving general anaesthesia using TIVA with or without mask. Intubation is preferred in very small children.

Age and month wise distribution of cases

table indicates age wise distribution of patients

surgeries	TKR	THR	Upper Limb Scopy	Lower Limb Scopy	Tear With Scopy		spine	>Elbow	Elbow	>Elbow
total	100	37	21	34	8	5	8	69	14	98

Surg.	>knee	<knee	clavicle	M	F	PEAD	sa	Sa+ea	ea	Ga+b	block	ga
total	145	174	11	544	180	11	402	10	5	27	243	11

Age and month wise distribution of cases

month	<20	20-40	40-60	60-80	>80
January	2	22	22	10	3
February	3	19	32	10	2
March	9	26	36	20	-
April	1	6	5	1	-
May	1	7	13	12	-
June	1	10	28	5	-
July	7	39	66	19	1
August	1	12	27	8	3
September	8	33	46	13	8
October	1	12	20	7	-
November	1	7	26	9	2
December	2	10	24	6	-
Total	37	203	345	120	19

TKR/THR: Age and month wise distribution of cases

month	20-40	40-60	60-80	>80
January	1	5	2	0
February	-	8	5	-
March		5	3	
April		1		
May		6	7	
June		3	3	
July	1	21	8	1
August		7		
September	2	22	8	
October	1	3	1	
November		6		
December		7		
Total	5	94	37	1

Upper limb surgeries were done under blocks (Khanduri[5], 2008; Anand and Jindal[1], 2009). While lower limb surgeries were done under spinal anaesthesia most of the time. Also, most procedures lasted less than 3 hours. Now Regional anaesthesia is preferred by all. (Khanduri[5], 2008) Osaigbovo and colleagues (Osaigbovo etal[9]., 2008) recruited 50 patients to compare the clinical benefits of trans-arterial axillary (24 patients) block and mid-humeral (26 patients) block,recorded 70.8% and96.15% success rates respectively. In our study success rate was 86%. Of the brachial plexus blocks, the interscalene approach is the mostappropriate block for procedures involving the shoulder because it blocks the suprascapular nerve that also innervates the upper part of the shoulder, which is left out by other approaches (Clarke[6], 2003; Osaigbovo[9] et al.,2008) Anatomy of nerve plexus has been studied in detail and now a day different approaches of giving blocks are invented. Tourniquet pain is not taken care by axillary block and requires injection of local anaesthetics in subcutaneous tissue of post half of axilla.

Block can be precisely given under ultrasound imaging guidance (Peterson et al.[10], 2002).In our study lower limb surgeries were done under subarachnoid block. This agrees with the findings of other workers (Schnittger[7], 2007). Morbidity is similar usingspinal anaesthesia compared with GA for LES in orthopaedics by some workers(Gonano[2] et al., 2006), we found a reduction in postoperative morbidity and mortality with the use of regional anaesthesia (Schnittger[7], 2007; Maurer[3] etal., 2007) We practiced continuous femoral nerve block (CFNB) with a sciaticnerve block can be used for TKR in high risk patients. Obasuyi[11] et al used spinal for lower limb surgeries and 83.7% upper limb surgeries were done under general anaesthesia and 16.3% cases under regional anaesthesia.

CONCLUSION

Availability of newer drugs, USG, PNS and block needles haswidened the scope of regional anaesthesia and acceptance of regional anaesthesia by patients

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