ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
Index Copernicus Value: 68 . 16
PubMed - National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 4, Issue – 4, July - 2019, Page No. : 160 - 166

Orthopaedic Surgery in the Elderly Experience in a Metropolitan Tertiary Hospital in Enugu, Nigeria

[1]Okenwa Wilfred Okwudili, Department of Surgery, ESUT Teaching Hospital Park lane Enugu, Nigeria.

[2]Edeh Anthony Jude, Department of Surgery, ESUT Teaching Hospital Enugu, Nigeria.

Corresponding Author: Okenwa Wilfred Okwudili, Department of Surgery, ESUT Teaching Hospital Park lane Enugu, Nigeria.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background: Surgical services for people over 65years of age are on the increase both in terms of the number and the complexity. One reason is due to increase in the general population and increase in the number of people surviving up to 65years and over as life expectancy in several climes increase. Advances in perioperative management have also made major surgery available for an increasing number of persons 65years and older. Documentation of the orthopedic pathologies and the peculiarities of presentation and management of these elderly people are the focus of this paper as there is paucity of information on geriatric orthopedic surgery in our environment.

Method: This is a retrospective study covering January 2014 to December 2017 conducted in ESUT Teaching Hospital. It covered patients 65years of age and above who presented and were admitted due to orthopedic pathology.

Result: The study recorded 193 patients who met the study criteria. There was 106 (55%) males and 87(45%) females between 65-95years. Mean age was 75.2yeas ±2.4years. Out of the 193 patients, 8(4.1%) signed against medical advice (SAMA). Common orthopedic pathologies seen were diabetic foot complications and femoral neck fractures. Hypertension was the commonest co-morbidity recorded while bed sore and delayed wound healing were the commonest complications noted. 5 (2.5%) deaths were recorded.

Conclusion: Orthopedic surgical interventions were tolerated well by the geriatric patients in this study and this improved their quality of life and possibly their life expectancy. Optimizing and controlling risk factors are key to successful surgical intervention.

Keywords: Geriatric people, life expectancy, orthopedic admissions, Co-morbidities.

Introduction

The UN agreed that the cutoff is 60+years to refer to the older or elderly persons. The aging process is a biological reality which refers to ages nearing or surpassing the life expectancy of human beings, and is thus the end of the human life cycle.

In the developed world, chorological time plays a paramount role and the age of 60 or 65, roughly equivalent to retirement ages is said to be the beginning of old age.[1] In many developing countries old age is seen to begin at the point when active contribution is no longer possible[2].

The world's population is ageing and virtually every country in the world is experiencing growth in the number

and proportion of older persons[3]. This obviously has attendant consequences and implication on the health requirement for the geriatric population. In the United States of America, it is expected that the population will increase by 17.0% by 2020 and the number of people over the age of 65years will increase by 53.2% by 2020[4]. This trend has been noted in Nigeria where the population of people 65years and above increased from 2,907,740 in 1991 to 4556,761 in 2006 giving 56.0% increase over a period of 15years[5].

This increase in the number of geriatric people in Nigeria can be attributed to improved financial resources and better or improved access to health care facilities which the country experienced in recent years. The increase in life expectancy means that more people will need surgical services[4] at 65years and above making it necessary to tailor surgical service to cover geriatrics.

As it were, care for the elderly patient who needs orthopedic surgery especially the patient requiring emergency surgery needs to take into action a review of the physical ability and risks specific to the elderly patient[6]. This is because the aging process is known to bring about significant change in the neuromuscular and skeletal systems[7]. Keeping these changes in proper perspective go a long way in ensuring successful outcome in geriatric orthopedic surgical services.

Literature review show that the study of orthopedic surgery in the elderly had been outlined reasonably in the developed world[6] but not much if any study has emanated from Nigeria on this topic. A couple of studies on surgery in the elderly have however been conducted in Benin[8] and Enugu[9] Nigeria but they did not cover orthopedic surgery in the elderly. Clearly many elderly patients have been presenting in our hospital with orthopedic pathologies which require surgical intervention.

The need to document presentation, care and outcome of orthopedic related surgical issues in the elderly in our environment prompted this study. It is also hoped that the study will create the necessary awareness about the orthopedic surgical needs of the elderly and in turn lead to provision of necessary facilities for their care.

Materials and Method

This is a retrospective study involving patients 65years and above who were admitted into the orthopedic surgery service of ESUT Teaching Hospital Enugu Nigeria. The hospital is located in the heart of the city and easily accessible to patients who live in the metropolis and neighboring local council areas and states. Data was collected using patient's case notes, ward and theatre registers as well as accident and emergency registers. Data collected included age, sex, diagnosis co-morbidities, treatment given and outcome in terms of survival or mortality. Study covered the 5years period from January 2014 to December 2017

Result

There were 193 patients in the study. This consisted 106(55%) males and 87 (45%) females giving a male to female ratio of 1.2:1. The age range of the patients was 65years to 95years with mean age of 75.2years ±2.4years.

Out of 193 cases recorded, 78. (40.4%) were admitted through the accident and emergencies department as orthopedic emergencies, while the other 115(59.6%) were admitted as referrals from other surgery sub-specialties and the internal medicine units. The emergencies were made up of 41(52.6%) cases of diabetic foot complications, 35(44.9%) cases of various bone fractures and 2(2.5%) cases of severe low back pain due to spondylosis.

The commonest indication for admission from all sources was diabetic foot complication in 47 (24.5%) patients.

Most of the patients 41(87.2%) were admitted through the accident and emergency (A&E) unit while the other 6(12.2%) patients were referrals from internal medicine and plastic surgery units where they were being managed previously. The 47 patients were made up of 23(49.0%) males and 24 (51.0%) females. Most of the patients presented at Tony Wagner (1981) grade 3 or more. Below knee amputation was offered to 23(48.9%) patients. Above knee amputation in 8(17.0%) patients and Ray amputation in 7(14.9%) patients Debridement and limb salvage was successful in 6 (12.8%) patients while 3(6.4%) died due to multiples organ dysfunction resulting from overwhelming sepsis.

There were 45 cases of fracture of head of femur 26(57.8%) were intertrochanteric or basic-cervical, 11(24.4%) were trans-cervical and 8(17.8%) were sub capital. Using gardens classification of femoral neck fractures 37(82.2%) were types 1 and 11, 5(11.1%) type 111 and 3(6.7%) type IV. Surgical intervention was the commonest mode of treatment. Dynamic hip screw (DHS) was used in 30(66.7%) patients, 5(11.1%) patients had Austin Moore hemi-arthroplasty while 3(6.7%) patients had excision arthroplasty (girdlestone arthroplasty). Conservative treatment in the form of skeletal traction was used in 7 (15.5%) patients. Patients who had DHS and Austin more arthroplasty were initially mobilized on wheel chairs within 3 weeks of surgery then on Zimmer frames 12 weeks after surgery when radiological and clinical assessments indicated good fracture healing. Patients treated conservatively were mobilized after 12 weeks of traction with clinical and radiological evidence of healing.

Majority of patients 15(60%) who had tibia fractures were treated surgically using intramedullary nail and plate and screws, while 10(40%) patients were managed conservatively using above knee external cast after manipulation under anesthesia.

Osteoarthritis mainly of the knee was responsible for 17(8.8%) admissions. They were admitted due to the severe pain and associated swollen joints due to effusion. Treatment was conservative with drugs and knee joint aspiration with Robert Jones bandaging.

Of the 10(5.1%) cases of metastatic bone diseases admitted, 8(80.0%), were men and was due to prostatic malignancy while 2(20%) cases were female, one was due to breast malignancy and the other was due to cervical carcinoma. The patients were managed conservatively using analgesics and subsequently referred for radiotherapy. However 3 patients opted to sign against medical advice and were discharged from hospital accordingly. One of the patients died in hospital due to complication resulting from prostate malignancy.

Humeral fractures accounted for 10(5.1%) cases of admission. Surgical treatment in the form of open reduction and internal fixation using intramedullary nail and narrow dynamic compression plates and screws formed treatment option for 7 (70%) patients. Hanging cast external splint was the treatment modality for 3 (30%) patients after manipulation under anesthesia (MUA).

All 8(4.1%) cases of distal radial fractures (Cole's fractures) were managed conservatively using plaster of Paris (POP) or fiber glass cast after close manipulation under anesthesia. Hands were put to use as soon as the post manipulation pain subsided reasonably. Lumbar spondylosis giving rise to severe low back pain was the indication for admission in 5 (2.6%) patients. These patients were managed conservatively using a combination of anti-inflammatory drugs and

immobilization with bilateral skin traction. All the cases improved significantly after two weeks of treatment.

There were 5(2.6%) cases of shoulder dislocation and they were all managed conservatively. They had the limb strapped after closed reduction under anesthesia. One patient had nerve paresis which resolved four weeks after the MUA. He had earlier had tight splinting of the arm by a native bone setter.

All 5(2.6%) cases of hip dislocations had closed reduction under anesthesia with bilateral skin traction for 6 weeks. They were later mobilized on crutches.

The 5(2.6%) patients who had De quervian synovitis had synovectomy under local anesthesia and were discharged after 24 hours of admission. Also all 5(2.6%) case of vascular gangrene had below knee amputation after Doppler ultrasound confirmed level of tissue vascularity and viability, was below the knees.

There were 3(1.6%) cases of patella fractures and 3 radius fractures. The 2 cases of patella fractures had cordage wiring and the other case had above knee POP cast. One patient who had radial fracture had per-cutaneous pinning while the other two were managed with below elbow POP cast after MUA.

Pressure sores in 16 patients, urinary tract infections (UTI) in 11 patients, and delayed wound healing in 9 patients, were the common complications noted. Daily wound dressing with appropriate wound healing agent was employed in wound care to achieve healing. Regular turning of the patients as well as smooth clean beddings were used in preventing development of new bed sores. Antibiotic intake and proper hydration were used to treat cases of established UTI. Anti-thrombotic agents were used to prevent deep vein thrombosis. Anesthesia was mainly loco- regional. Epidural anesthesia was used in 118(73.3%) cases, brachial plexus block in 2(13.0%), local anesthesia in 12(7.5%) and general anesthesia in 10(6.3%) procedures.

Table 1: Indication for Admission

Pathology	Males		Females		Total	%
	R	L	R	L		
Fracture neck of femur	15	3	17	10	45	23.3
Spondylosis (low back pain)	3		2		5	2.6
Dequervian synovitis	3		2		5	2.5
Metastatic disease	8			2	10	5.1
Patella fracture	3				3	1.6
Diabetes foot complication	8	15	7	17	47	24.5
Pelvic fracture/hip dislocation	2		3		5	2.6
Fracture humerus	3	2	3	2	47	5.1
Fracture radius/ulna		2	1		3	1.6
Coles fracture	3		3	2	8	4.1
Fracture tibia/fibula	12	8	5		25	13.0
Dislocation of the shoulder	2	1	2		5	2.6
Arthritis	8	2	5	2	17	8.8
Vascular gangrene	2	1	1	1	5	2.6
Total	72	34	51	36	193	100.0

Table 2: Co-Morbidities And Complication Noted

Co morbidities	
Hypertension	128
Diabetes mellitus	103
Cardiomyopathy	116
Cognitive impairment	24
Visual impairment/Blindness	16
Renal impairment	8
Respiratory insufficiency (COAD)	5
Complications	
Pressure sores	16
Urinary tract infection	11
Delayed wound healing	9

Discussion

Advances in peri-operative management have made major surgery available for an increasing number of persons 65years and older, and figures from the USA show more

than 600,000 operations in geriatric patients each year (Doherty 2003).

In our study diabetic foot complications in the form of diabetic foot ulcers (DFU) and foot gangrene was commonest pathology seen in the elderly patients and it resulted in different level of amputations. Other studies[10, 11], have also noted diabetic foot complication as the commonest indication for amputation amongst the elderly. This has been noted to be due to significant arterial compromise from long standing elevated blood sugar. In this group of elderly patients, there was 3 (6.4%) deaths which compares favorably with the finding of Ole Hoffstad et al[12] where 30 days post-operative mortality after amputation for DM gangrene was 10%.

Femoral neck fractures are regarded as one of the commonest traumatic injuries in the elderly[13]. This opinion is very much reflected in our study which recorded femoral neck fractures as the commonest traumatic injury constituting 23.3% of all admissions of the elderly. Femoral neck fractures are only second to diabetic foot complication when all admission of the elderly is considered in our study. Outcome of treatment of these patients was good particularly those who had surgical intervention. The choice of dynamic hip screw and de-rotation screws or hemi-arthroplasty as treatment options for different fracture patterns played an important role in the outcome recorded. Massoud El[14] in his study noted good healing amongst the elderly with basi-cervial femoral neck fractures treated with dynamic hip screw and de-rotation screw. Excision arthroplasty obviously was a salvage surgery where patients cannot afford total hip replacement or are too sick to have reasonable use of the limb after surgery. Our study yielded good result in management of tibia fractures. The healing of these fractures was helpful and added quality to the life of our elderly patients. Studies have shown that tibia non-union has a devastating effect on the quality of life of individuals[15,16]. As much as possible, whatever could be done to maintain reasonable mobility and comfort in the elderly patients should be done for the obvious benefits they derive from such efforts. The commonest form of anesthesia used in our patients was regional which may be augmented with sedation to allay patient's anxiety. Our review noted that epidural/spiral anesthesia was the anesthesia of choice in 73.3% of cases requiring surgical intervention and the elderly patients tolerated the procedure very well. This finding is in line with the study by Bourget[17] who recommended application of regional anesthesia over general anesthesia in the elderly as central neuraxial blockade in regional anesthesia reduce surgical stress by blocking sympathetic and segmental efferent nerve activity. This reduces the level of catabolic hormones and makes it easier for the decreased functional reserve of the geriatric organs to handle surgical stress.

Hypertension was the commonest co-morbid pathology in our study and is similar to the finding by Njeze[9] in Enugu Nigeria. It is generally agreed physiologic reserve associated with aging may contribute to complication of surgery, but most of the increased risk and mortality is due to associated chronic illness.[18]

Conclusion

Orthopedic surgery in the elderly in our Centre, which is in a resource-poor country, is gradually stabilizing and results from managing those seniors surgically is good but can be improved upon. Setting up a geriatric orthopedic ward and equipping such adequately will make a difference in the outcome of managing the elderly. It must be said that timely treatment of the elderly adds quality to their lives and this can be greatly enhanced if advocacy and legislation to reduce cost of care is enabled.

References

1. Gorman M. Development and rights of older people. Randel J, et al. Eds. The aging and development report: poverty, independence and the world's older people. London, Earthscan Publications Ltd, 1999: 3-21.
2. Togunu-Bickersteth F. Chronological definitions and Expectations of old age among young adults in Nigeria. Journal of Aging studies.1987;1(2); 113-24.
3. United Nations Department of Economic and Social Affairs, Populations Division (2015). World Population Ageing 2015(ST/ESA/SER.A/390) https:www.un.org.WPA2015-Report.Accessed 31.03.2019
4. Etzioni DA, Liu JH, Maggard MA, Ko CY. The aging population and its impact on the surgery workforce. Ann Surg 2003;238(2) 170-177
5. 2006 Population and Housing Census (Priority Table Volume 1. August 2009)
6. Luiz EG. Leme, Maria do Carmo S Manuella T, Simona da Silva H. Orthopedic Surgery among the elderly: Clinical characteristics. Rev. Bra ortop.2015; 46(3):238-246. Published 2015 Dec 8. Doi 10.1016/S2255-4971(15)30189-0
7. Grecula Micheal J, Caban Mabel E. Common Orthopedic problems in the elderly patients. Journal of the America College of Surgons.2005; 200(5):774-83. https//doi.10.106/j.jamcollsury.2004.12.003. Accused 04-04-2019.
8. Ohanaka CE. Brest cancer in the elderly. J bio medl sci 2002, 1 (1):33-42.
9. Njeze GE. Surgical operations in the elderly patients. Orient journal of medicine.2012, 24(1-2):13-17.
10. Camona GA, Hoffmeyer P, Herrmann FR, Vaucher J, Tschopp O, Lacraz A, virscher UM. Major lower limb amputations in the elderly observed over ten years, the role of diabetes and peripheral arterial disease. Diabetes metab 2005, 31 (5): 449-454.
11. Elise M. Coletta. Care of the elderly patients with lower extremity amputation. J Am Board fam pract 2000, 13:23-34
12. Ole Hoffstad, Nandita Mitra, Jonathan Walsh, David J. Margolis. Diabetes, lower extremity amputation and death. Diabetes care 2015 oct 38 (10):1852-1857 https?//doi.org/10.2337T/dc 15-0536
13. Orlin Filipov. Epidemiology and social burden of the femoral neck fractures J of IMAB 2014 Jul-sep: 20(4):516-518 doi http://dx.doi.org/10.5272/jimab.2014 204.516
14. Massoud EI. Fixtion of basicervial and related fractures. Int orthop. 2010; 34 (4): 577-582. Doi:10.1007/500264-009-0814-1
15. Mark R. Brinker, Bryan D. Hanus, Milan Sen, Daniel P.O'Connor. The devastating effect of tibial non-union on health related-quality of life. JBJS 2013, 95(24)2170-2176.doi:10.2106/JBJS.L.00803.
16. Patrick C. Schottel, Daniel P. O'Connor, Mark R. Brinker. Time trade-off-as a measure of health-related quality of life. Long bone nonunion have a devastating impact. JBJS 2015; 97 (17):1406-1410.doi.10.2106/JBJS.N.01090.
17. Borget Alain. Anaesthesia for orthopaedic surgery in the elderly: facts to think about. J med sci 2007; 27 (3): 101-108. http://jms.ndmctsgh.edu.tw/270310.
18. Doherty G.M, Lonergan E.T. Management of the older surgical patient. Way LW and Doherty GM Eds. Current Surgical Diagnosis and Treatment; 11th Edition. New York, McGraw-Hill publishers: 2003: 67.