

Surgical operations in elderly patients

Original Article

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ABSTRACT

Background: Operations on patients over 65years of age are increasing steadily in number and complexity because of increase in number persons living up to 65years and above.

Objective: Frequently, elderly patients are encountered in hospitals with different diseases that can only be treated by either minor or major surgical operations. Yet, there is scarcity of documented studies about surgical operations on the elderly in this country. This formed the stimulus for this study.

Method: This is a retrospective study. Data concerning 119 patients aged over 65years, operated upon from 1993-2009, at Trans Ekulu Hospital Enugu, South-East Nigeria, were analyzed. These clinical data were collected from the theatre register and patients' case notes. The surgical operations were undertaken by a consultant surgeon, while the two gynaecological cases were done by a consultant gynaecologist.

Results: Out of these 119 elderly patients aged 65-94years operated upon, 82 were males and 37 were females. Sixty-six were major and 53 minor procedures. Hypertension was the most common co-morbid condition. There were 12 deaths recorded in the major category, and none in the minor operations. Haemorrhage, infection and cancer were responsible for the deaths.

Conclusion: Most of the patients who underwent these surgical operations derived benefits both for improved quality of life and increased life expectancy. The elderly tolerate surgical procedures well, provided the risk factors are well controlled.

Keywords: Elderly, hypertension, major, risk factors.

INTRODUCTION

Operations on patients aged more than 65years are increasing steadily in number and complexity.¹ Demographic trends indicate that future increases will even be greater.^{1,2} Generally, there is a rapid increase in life span in industrialized nations, resulting from improved health care which began in the 20th century.²

In the United States of America there is demographic evidence that the average life span increased by 25years in the last century alone, i.e. from 50years to 75years, and the fastest growing segment of the population consists of individuals over 65years of age.^{2,3} Nigeria is not left out in this improvement. The population of Nigerians aged 65years and above increased from a figure of

2,907,740 in 1991 to 4,556,761 in 2006, i.e. 56% increase in a space of 15 years.^{4,5} Improved income and better access to health care facilities are probably responsible for this increase in the life span of Nigerians. This indicates that taking care of the elderly will become an increasingly important component of the surgeons work load.²

Review of literature showed that apart from a study of breast cancer on the elderly, in Benin, Nigeria, where 20 out of 107 patients had mastectomy, there was no evidence of documented studies of various surgical operations on the elderly in Nigeria.⁶ Yet repeatedly, elderly patients are encountered in hospital practice needing surgical therapy for multiple reasons. These reasons stimulated a review of the outcome of elderly patients who had surgical operations in Trans Ekulu Hospital Enugu, Nigeria.

METHODOLOGY

This is a retrospective study. One hundred and thirteen patients aged over 65 years who had operations from 1993-2009, at Trans Ekulu Hospital Enugu, South-East Nigeria, were recruited for this study. Most of the patients came from Enugu and the neighbouring states. The theatre register and patient's case notes were the sources of data obtained. These data included the patients' age, sex, co-morbid conditions, investigations, types of operation, histological diagnosis where necessary, and survival or mortality.

The elective cases had been worked up and found fit for surgical operations. The emergency cases were all intestinal obstructions, some caused by malignant lesions. They were all adequately resuscitated before being taken to the operating room for surgical treatment. These operations were performed by one specialist surgeon, while the hysterectomies were done by one gynaecologist. The results were analyzed using simple percentages, and mortality rates were worked out for the major operations.

RESULTS

Out of these 119 elderly patients aged 65 to 94 years (mean 73.7 years) who had surgeries, 76 were males and 37 were females. Sixty-six were major and 53 minor procedures. Of the 66 major cases, 60 were elective and 6 were emergency cases.

Forty-three patients, aged more than 65 years, suffering from benign enlargement of the prostate had trans-vesical prostatectomy, and 32 of these, had hypertension, 3 had diabetes mellitus and 2 had chronic obstructive airway disease. Six of them died after prostatectomy. Reactionary haemorrhage was responsible for three deaths, while the remaining three died of secondary haemorrhage, usually caused by sepsis.

Table 1. Surgical disorders for which laparotomy was indicated

Disease	No. of Patients	Operation
Cholelithiasis with Cholecystitis	4	Cholecystectomy
Obstructive jaundice from advanced pancreatic cancer	3	Triple Bye-pass
Caecal carcinoma causing Intestinal obstruction	2	Right hemi-colectomy
Advanced small bowel obstruction	2	resection of gangrenous bowel with end to end anastomosis
Dysplasia of the uterine cervix	2	Total abdominal hysterectomy
Sigmoid volvulus	1	Untwisting of volvulus and colopexy
Advanced gastric cancer	1	Anterior gastrojejunostomy
Gastric outlet obstruction secondary to peptic ulceration	1	Vagotomy & gastrojejunostomy
Obstructive cancer of the bladder	1	Ureterosigmoidostomy

Seventeen patients had laparotomy for various lesions (Table 1). These were intestinal obstruction, cholelithiasis with cholecystitis, dysplasia of the uterine cervix,

obstructive jaundice, advanced cancer of the stomach, obstructive lesions at the gastric outlet and ureteric orifices, respectively. Six out of these 17 patients had hypertension, one had controlled congestive heart failure and another one was diabetic. Six patients died after laparotomy (Table 2) and they were aged between 70-75years.

Table 2. Mortality from surgical operations

Operation	No. of deaths
Benign prostatic hyperplasia	6
Obstructing carcinoma of the caecum	2
Advanced small bowel obstruction	2
Advanced pancreatic cancer with obstructive jaundice	2
Total	12

Five women and one man suffered from carcinoma of the breast, and two of them were hypertensive. They all underwent modified radical mastectomy, followed by chemotherapy, and there was no mortality. Fifty-three patients underwent different (minor) surgical operations, in which there was no mortality. These included herniorrhaphies, bilateral orchidectomies, hydrocelectomies, excision biopsies and bouginage (Table 2). The co-morbidities found in these patients were hypertension in 15, and asthma and parkinsonism in one patient each.

DISCUSSION

The rapidly increasing population of the elderly usually puts more pressure on the health care services, and a significant part of this is in surgical services.⁷ The elderly patient should not be seen as an automatic candidate for death, but rather as one who may have a significant life expectancy. It has been commonly accepted that age itself is never an absolute contraindication for surgical treatment in the elderly.⁸ Therefore, elderly patients who present for surgical treatment may have many years to gain.

They are known to cope easily with simple operations where there is no risk of bleeding or significant infection, and could often be treated as day case procedures. Fifty-three of the patients under review had such procedures which included hernia repairs, hydrocelectomies, excision of lumps, bouginage, orchidectomy and haemorrhoidectomy. They had no complication and no fatality. Nonetheless, day case surgery is not without complications and even mortality, as exemplified by a large United States series, in which there was an operative mortality of 0.25-0.5 per 100,000.⁹

Some surgical lesions, however, are predominant diseases of the elderly and many of these can only be solved or ameliorated by surgical intervention. These include benign prostatic hyperplasia and some cancers, especially those of the colon and rectum, prostate and pancreas. These lesions were encountered in this study and had to be managed carefully and expertly. Careful preoperative preparation and attention to co-morbid conditions from non-malignant diseases generally led to smooth post-operative recovery in majority of the patients. The most important life limiting factor in them was the disease and not their age. It is known that the elderly tolerate many major operations well and have reasonable post-operative mortality rates, provided there are no serious complications.

There was no mortality in patients who had mastectomy, unlike Harbrecht's study where there was one death from cardiovascular disease.¹ Ohanaka in the Benin did not indicate whether there was any post-operative mortality his study.⁶ There were 6 deaths among 43 patients who underwent prostatectomy in this review. This differed from the results of Luttwak, *et al*, where there was no mortality, after transvesical prostatectomy in 98 elderly patients, in Israel.¹⁰ Age alone, therefore, is not a contraindication to surgical operations,

provided the surgeon understands that there are peculiarities of surgical disease in the elderly.

The most common co-morbid condition noted in our study was hypertension, and the attendant complications like congestive heart failure. Only 4 patients had diabetes mellitus, one had bronchial asthma, while 2 had chronic obstructive airway disease from long service as coal miners. Control of these co-morbid conditions was responsible for the reasonable mortality recorded in the elective major procedures, where 8 out of 60 patients died, giving a mortality rate of 13.3%.

Two major concerns for surgical patients are bleeding and infection, but these are especially dangerous for elderly patients. Harbrecht, *et al*, indicated that progressive decline in physiologic function and organ reserves probably accounts for the characteristic fragility in the elderly.¹ As a result, an apparently healthy elderly patient may tolerate an operation, but one untoward complication may lead to a train of disastrous events. The study showed that inability to survive post-operative bleeding or infection was universal.¹

Reactionary haemorrhage was responsible for the death of 3 patients after prostatectomy in this study, while secondary haemorrhage usually due to sepsis caused another 3 post-prostatectomy deaths. Elderly patients usually have cardiovascular changes that are associated with loss of elasticity in blood vessels, increase in peripheral resistance and reduced cardiac output.¹ These changes result in reduced blood flow to organs which gets worse with haemorrhage. Vital organs like the brain and kidney do not tolerate poor blood supply for prolonged periods, and death usually results.

Infection in the elderly patient is a major concern and is rapidly fatal, so also are malignant lesions, and these were responsible for 6 post-laparotomy deaths (Table 2). Older

patients are more likely to be diagnosed with late-stage disease.¹¹ Two patients in this study who had carcinoma of the caecum presented only when the masses had grown so huge to cause obstruction. On the contrary, 1 patient who had sigmoid volvulus without peritonitis, survived. Therefore, out of the 17 patients who had both elective and emergency procedures for various intra-abdominal diseases, 6 died, i.e. 35% mortality for this group. Those who died were aged between 70 and 75 years.

Doussou, *et al*, in Cotonou found that advancing age of over 70 years was associated with increasing operative mortality in patients suffering from cancers of the colon and rectum.¹² Harbrecht, *et al*, had earlier recorded 32% mortality after 40 consecutive laparotomies for various diseases in octogenarians and there was a high number of emergency operations among the dead.¹ In a New Zealand series elective major abdominal surgery was generally well tolerated by the elderly, though there was high in-hospital morbidity and mortality of 29% in the emergency group.¹³

In conclusion, our patients who underwent both major and minor surgical operations derived benefits both in improved quality of life for the former and increased life expectancy for the latter. For those who had cholecystectomy, hysterectomy, mastectomy, vagotomy with gastrojejunostomy and ureterosigmoidostomy, there was no mortality, while those who underwent major procedures where significant bleeding, infection or a malignant lesion was involved, had reasonable post-operative mortality rates. Therefore, even in the developing nations, the elderly tolerate surgical procedures well, and surgeons should not withhold surgical therapy on grounds of age alone as long the risk factors are taken care of. These include co-morbid non-malignant diseases, infection and haemorrhage.

The general risk factors for infection in the elderly have been identified as the presence of an indwelling urinary catheter, chronic undernutrition, diabetes mellitus, and poor oral hygiene/dentition.¹⁴ Poor oral hygiene can result in serious pulmonary infections if oral contents are aspirated. The prolonged use of Foley catheter increases the likelihood of bacteriuria, so it should be removed as quickly as possible.

Many investigators advise that careful control of glucose levels between 80–110 mg/dl, attention to nutritional state, and extensive laboratory studies to detect abnormal values that can be improved upon pre-operatively can reduce the rate of surgical death in aged patients such that it will not be so different from that of other age groups.^{14,15,16}

Table 3. Minor surgical operations

<u>Operation</u>	<u>No.</u>
Herniorrhaphy	13
Bilateral orchidectomy for advanced cancer of the prostate	10
Hydrocelectomy	9
Excision biopsy	7
Haemorrhoidectomy	2
Bouginae	12

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