

Indications and Findings of Upper Gastrointestinal Endoscopy in Elderly Patients in Parakou, Republic of Benin

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Abstract

Introduction: Elderly people are considered fragile and at greater risk of having malignant gastrointestinal tumors. The objective of this work was to report the reasons for performing gastrointestinal endoscopy and the lesions found during the endoscopy of this target population in Parakou. **Patients and Study Methods:** This was a descriptive and cross-sectional study with a retrospective collection of data from January 2016 to December 2017, then from January 2020 to December 2021. It took place in the Regional Teaching Hospital of Borgou-Alibori in Parakou and in the private gastrointestinal endoscopy center of Parakou (Northern Gastrointestinal Exploration Center). All patients aged at least 60 years who had undergone an upper gastrointestinal endoscopy during the study period were included. The variables studied were: the sex, age, indications for the examination, endoscopic lesions and data from the anatomo-pathological examination. **Results:** In total, out of 1540 upper gastrointestinal endoscopies performed during the study period, 249 (16.17%) involved patients aged 60 years and over. The sex ratio was 1.26. The main indication for the examination was epigastric pain (123 cases, *i.e.* 49.40%) followed by vomiting (53 cases, *i.e.* 21.29%). In terms of lesions, non-tumorous gastropathy came first in the stomach (206 cases, *i.e.* 82.73%) while esophageal lesions were dominated by esophageal candidiasis and cardiac incompetence (39 cases, *i.e.* 15.66% in each of the two situations). In the duodenum, ulcer was noted in 30 patients (12.05%). In 38 patients, 12 (31.58%) were tested positive for *Helicobacter pylori* infection. Cancers of the gastrointestinal tract were confirmed in 11 patients (4.42%). **Conclusion:** Upper ga-

strointestinal endoscopy remains an excellent examination for the exploration of the upper gastrointestinal tract. In Parakou, epigastric pain represents the main indication for this examination in subjects over 60 years of age. Inflammatory or ulcerated non-tumorous gastropathy is the most commonly endoscopic lesion. Esophageal and gastric cancers are less common in this population group according to our study.

Keywords

Upper Gastrointestinal Endoscopy, Elderly Subjects, Inflammatory Gastropathy, Candidiasis, Cancer, Parakou

1. Introduction

Although diseases occur regularly, the world population continues to live longer. A subject is considered elderly when he or she is 60 years of age or older [1]. Upper gastrointestinal endoscopy (UGIE) is an examination allowing the exploration of the upper gastrointestinal tract. Its semi-invasive nature explains the reluctance of some practitioners to request this examination in elderly subjects, whereas UGIE without general anesthesia is well tolerated by 97.5% of these subjects in Mali [2] and by 88% of them in Senegal [3]. It has been proven that this examination is extremely useful in elderly subjects for diagnosis and therapeutic management [4] [5]. According to a Japanese study, very elderly subjects (over 85 years of age) benefited more from therapeutic procedures during routine gastrointestinal endoscopy than young subjects [6]. The incidence of gastrointestinal diseases, in particular cancers of the gastrointestinal tract, increases with age [6]. In addition to cancers, elderly people also tend to present benign diseases such as gastritis and gastric or duodenal ulcers [3] [6]. In a Turkish study of gastroesophageal reflux disease, elderly patients rarely had typical and severe symptoms compared to younger patients. However, significantly more severe endoscopic lesions were observed in older patients compared to younger patients [7]. In Benin, more precisely in the northern part, few data are available on gastrointestinal endoscopy in elderly subjects. We need more information about the application of upper GI system endoscopy in the elderly population. The objective of this work was to report the reasons for performing UGIE and the lesions found among elderly patients explored in Parakou in the Republic of Benin.

2. Patients and Study Methods

Type and period of study

This was a descriptive and cross-sectional study with a retrospective data collection. It covered a period of 4 years from January 2016 to December 2017 and from January 2020 to December 2021.

Study sites

The study took place in Parakou, in the gastrointestinal endoscopy unit of the

Reginal Teaching Hospital of Borgou-Alibori (CHUD-B/A) and in the Northern Gastrointestinal Exploration Center (CEDIS).

Study population

This study focused on patients admitted for the performance of UGIE whatever the indication.

- ***Inclusion criteria:*** All patients aged at least 60 years who had performed UGIE during the study period were included.
- ***Exclusion criteria:*** Patients in whom the UGIE was incomplete for whatever reason (an impenetrable stenosis with the adult endoscope without an identified lesion, poor tolerance of the examination) were excluded.

Variables

The variable of interest was the finding of UGIE in these elderly patients. The other variables studied were: the sex, indication for UGIE, endoscopic lesions and anatomic-pathological data when available. Data were collected on the basis of UGIE reports.

Sampling

It was non-probabilistic. We carried out an exhaustive recruitment of patients admitted for the performance of UGIE during the study period.

Performance of upper gastrointestinal endoscopy

The samples were immediately fixed in 10% formalin and then sent to the anatomic pathology laboratory with an information sheet filled out by the doctor. It should be noted that in the event of poor tolerance of UGIE, biopsies were not performed.

Performance of anatomic-pathological examination

The histological examination of all samples was carried out by two pathologists. It took place in several stages including macroscopy, circulation, inclusion, microtomy, staining, assembly and microscopy.

Data collection

Data were collected using the registers of gastrointestinal endoscopy report and anatomic-pathological examination.

Data processing and analysis

The data were recorded in Excel 2019. The qualitative variables were expressed as number and percentage and the quantitative variables as mean \pm standard deviation when the distribution was normal, otherwise as median with the 1st and 3rd quartiles.

Ethical considerations

In this retrospective study, the data collected were used anonymously and confidentially.

3. Results

General data

During the study period, 1636 patients performed UGIE at the gastrointestinal endoscopy unit of CHUD-B/A and at CEDIS. Ninety-six (96) patients were ex-

cluded because the examination was incomplete without any endoscopic lesion. The study therefore focused on the remaining 1540 patients (872 at CEDIS, *i.e.* 56.62% and 668 at CHUD-B/A, *i.e.* 43.38%). See the flow chart for the selection process of the patients at the **Figure 1**.

Frequency of upper gastrointestinal endoscopy in elderly patients

Out of the 1540 UGIE considered, 249 were performed in elderly patients, representing a frequency of 16.17%.

Data on gender and age

There were 139 men and 110 women. The sex ratio was 1.26. Their average age was 67.15 ± 6.38 years with the extremes of 60 and 90 years. The distribution of patients according to age groups is shown in **Figure 2**. The age group from 60 to 64 years was the most represented (94, *i.e.* 37.75%).

Data on indications of UGIE

Epigastric pain was the main indication (123, *i.e.* 49.40%) followed by vomiting (53, *i.e.* 21.29%) and weight loss (40, *i.e.* 16.06%). **Table 1** summarizes the indications for UGIE in elderly subjects in Parakou.

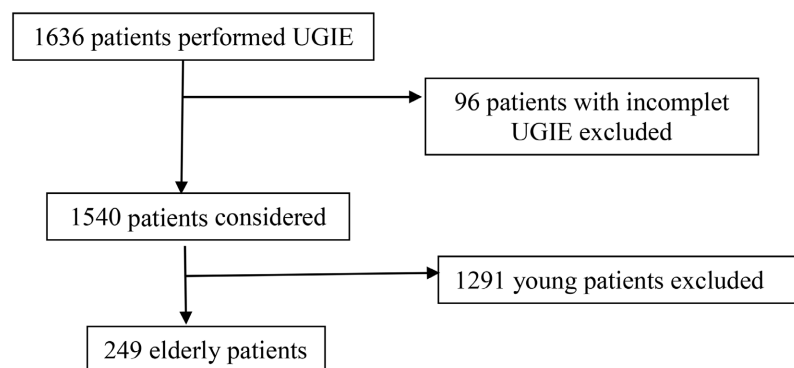


Figure 1. Flow chart for the selection process of the patients (2016-2017 and 2020-2021, Parakou).

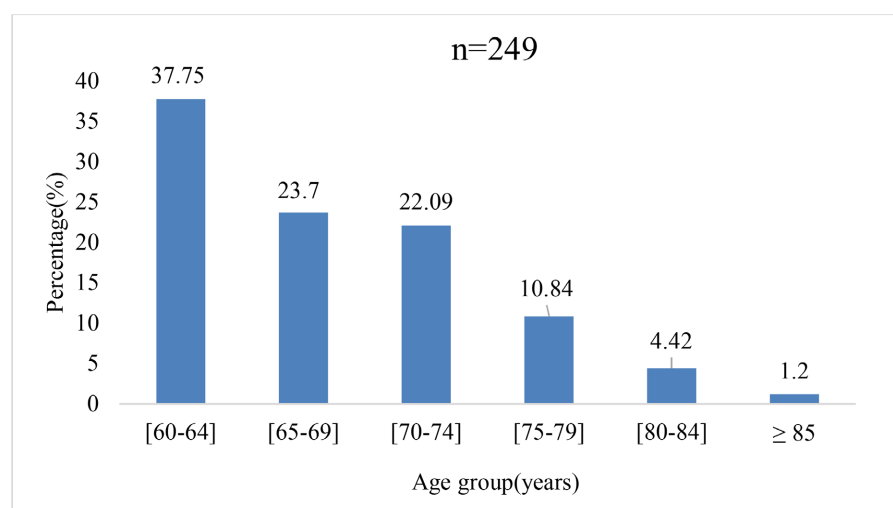


Figure 2. Distribution of patients included according to age groups (n = 249, 2016-2017 and 2020-2021, Parakou).

Table 1. Distribution of elderly patients according to indications for upper gastrointestinal endoscopy (n = 249, 2016-2017 and 2020-2021, Parakou).

	Size	Percentage (%)
Epigastric pain	123	49.40
Vomiting	53	21.29
Weight loss	40	16.06
Dyspepsia	32	12.85
Dysphagia	28	11.24
Retrosternal pain	23	09.24
Hematemesis	23	09.24
Abdominal pain*	17	06.83
Melena	17	06.83
Pyrosis	14	05.62
Odynophagia	13	05.28
Regurgitation	11	04.42
Hiccups	08	03.21
Chronic liver disease	07	02.81
Anemia	06	02.41
Hematochezia	03	01.20
Caustic ingestion	02	00.80
Diarrhea	01	00.40

*Abdominal pain other than epigastric location; A patient could have several symptoms at once.

Data on endoscopic lesions

Table 2 shows the distribution of elderly patients according to the endoscopic lesions. The endoscopic lesions found were mainly non-tumorous gastropathies (206, *i.e.* 82.73%). Lesions suspected to be malignant were noted in 40 patients (16.06%) including 31 gastric, 8 esophageal and 1 duodenal. The UGIE was macroscopically normal in 2 patients (0.80%).

Depending on the segment of the upper gastrointestinal tract considered, esophageal damage was dominated by esophageal candidiasis and cardiac incompetence in the same proportions (39 cases), representing 15.66% for each of the lesions, followed by peptic esophagitis (38 cases, *i.e.* 15.26%). In the stomach, the lesions were mainly inflammatory or ulcerated non-tumorous gastropathy (206 cases, *i.e.* 82.73%) followed by gastric tumors (31 cases, *i.e.* 12.45%). Duodenal lesions were dominated by duodenal ulcer (30, *i.e.* 12.05%) and bulbitis (30, *i.e.* 12.05%). **Table 3** specifies the distribution of elderly patients according to the type of gastropathy on UGIE. It appears that non-tumorous gastropathies were mainly erythematous (195 cases, *i.e.* 94.66%) and ulcerated (69 cases,

Table 2. Distribution of elderly patients according to endoscopic lesions visualized (n = 249, 2016-2017 and 2020-2021, Parakou).

	Size	Percentage (%)
Esophageal injuries		
Esophageal candidiasis	39	15.66
Cardial incompetence	39	15.66
Peptic esophagitis	38	15.26
Hiatal hernia	17	06.83
Esophageal varices	10	04.02
Esophageal tumor	08	03.21
Foreign bodies	02	00.80
Extrinsic compression	01	00.40
Gastric lesions		
Non-tumorous gastropathy	206	82.73
Gastric tumor	31	12.45
Gastric ulcer	14	05.62
Gastric varices	03	01.20
Caustic injury	02	00.80
Gastric polyp	01	00.40
Duodenal lesions		
Duodenal ulcer	30	12.05
Bulbitis	30	12.05
Duodenal tumor	01	00.40

A patient could have several lesions at once.

Table 3. Distribution of elderly patients with non-tumorous gastropathy according to the type of gastropathy on UGIE (n = 206, 2016-2017 and 2020-2021, Parakou).

	Size	Percentage (%)
Erythematous gastropathy	195	94.66
Ulcerated gastropathy	69	33.49
Micronodular gastropathy	10	04.85
Portal hypertension gastropathy	05	02.43

A patient could have several types of gastropathy at once.

i.e. 33.49%). Portal hypertension gastropathy was rare (5 cases, *i.e.* 2.43%)

Data on the findings of the pathological examination

Out of the 249 elderly patients who underwent UGIE, 38 (15.26%) were able to perform the anatomic-pathological examination of the biopsies. Among them,

12 (31.58%) suffered from *Helicobacter pylori* infection. Among the 40 elderly patients with endoscopic lesions suspected to be malignant, 23 (57.50%) were able to perform anatomic-pathological examination of the biopsies. The malignant nature of the lesion was confirmed in 11 patients (47.82%), including 8 of gastric site and 3 of esophageal location. The gastric cancers were all adenocarcinomas (3 poorly differentiated, 2 moderately differentiated, 2 signet ring cell types and 1 well differentiated). As for the esophageal cancers, it was a squamous cell carcinoma in 2 patients and a well-differentiated adenocarcinoma (one patient).

Among the 12 elderly patients in whom malignant lesions were suspected on UGIE without the confirmation of the anatomic-pathological examination, it was chronic gastritis (10 patients), severe esophageal inflammation (1 patient) and non-contributory biopsy sample (1 patient). In summary, the hospital frequency of upper gastrointestinal tract cancer in elderly subjects was 4.42% (11 cases out of 249, including 8 gastric and 3 esophageal cancers).

4. Discussion

This study on UGIE in elderly subjects is one of the first in the Republic of Benin. It allowed us to know the indications for this examination as well as the endoscopic lesions visualized in this population group.

The frequency of UGIE performance among elderly subjects is 16.17% in Parakou. This frequency varies from one country to another. Dia *et al.* [3] in Senegal from 2014 to 2017, Lawson-Ananissoh *et al.* [8] in Togo from 2009 to 2013, Tolo *et al.* [2] in Mali from 2020 to 2021, Ckere-Jehl *et al.* [9] in France from 2004 to 2012, Bangoura *et al.* [10] in Ivory Coast from 2009 to 2016 reported 15.5%, 12.55%, 10.1%, 8.8% and 7.49%, respectively. This diversity in the results could be explained by the inclusion criteria which differ from one study to another (age greater than or equal to 60 years or 65 years or 75 years).

The average age of patients was 67.15 ± 6.38 years in the present study. This result is similar to those reported by Tolo *et al.* [2] in Mali (68.3 ± 6.4 years), Dia *et al.* [3] in Senegal (68 years), Lawson-Ananissoh *et al.* [8] in Togo (68.49 years).

The elderly subjects who underwent UGIE in Parakou were often male (sex ratio = 1.26), contrary to the findings made in Malian, Ivorian, Senegalese, Togolese and Turkish studies where the sex ratios were 0.9, 0.88, 0.82, 0.66 and 0.54, respectively [2] [3] [7] [8] [10].

Regarding the indications for UGIE, epigastric pain was the most common (49.40%). This result is similar to those found by Tolo *et al.* [2] in Mali (71.9%), Bangoura *et al.* [10] in Ivory Coast (38.36%), Dia *et al.* [3] in Senegal (55%) and Lawson-Ananissoh *et al.* [8] in Togo (47.29%).

In the present study, the endoscopic lesions were mainly non-tumorous and inflammatory gastropathy (82.73%). This could be explained by the frequent use of non-steroidal anti-inflammatory drugs by elderly people related to rheumatic pathologies. This predominance of non-tumorous gastropathy was noted in Mali (50%), Ivory Coast (39.81%), Senegal (44.4%) and Togo (59.73%) [2] [3] [8]

[10]. Esophageal candidiasis was common, this could be explained by the immunosuppression (advanced age, malignant tumor, comorbidity such as diabetes). Peptic esophagitis could also be induced by the cardiac incompetence frequently noted in these elderly patients. Duodenal and gastric ulcers were observed in 44 elderly patients (17.67%). This high frequency of ulcers could be explained by the frequent use of non-steroidal anti-inflammatory drugs and *Helicobacter pylori* infection.

In Parakou, confirmed upper gastrointestinal cancers were found in approximately 4 out of 100 elderly patients. A lower frequency (0.93%) was reported by Bangoura *et al.* [10] in Ivory Coast. Dia *et al.* [3] in Senegal found that gastric and esophageal cancers represented 2.5% and 2.3% of gastric and esophageal cancers in elderly subjects, respectively. A higher frequency (8.39%) of upper gastrointestinal cancers was noted in Togo from 2009 to 2013 [8]. In Turkey, the frequency of upper gastrointestinal cancers was higher (6.4%) in subjects aged 75 to 79 years and even higher (18%) in those aged over 80 years [4]. This confirms the fact that the risk of gastrointestinal cancer increases with age.

The main limitations of this study are, on the one hand, the low rate of performance of the anatomo-pathological examination of biopsies either because systematic samples were not taken during UGIE or because the samples were not examined due to lack of financial resources. On the other hand, there was a weak correlation (47.82%) between the endoscopic data and those of the pathological examination for lesions macroscopically suspected to be malignant. This could be related to the quality of the biopsy samples. In a Malian study, out of 8 malignant gastric tumors suspected on EOGD, 4 (50%) were confirmed on anatomo-pathological examination [2].

Another limitation of this study is that its retrospective nature did not make it possible to specify the use of non-steroidal anti-inflammatory drugs and the presence of comorbidities in these elderly patients.

Prospective studies are necessary in this population group to evaluate the relevance of the indications for UGIE, the tolerance of the examination and the factors associated with the presence of the different endoscopic lesions.

5. Conclusion

Upper gastrointestinal endoscopy remains an excellent examination for the exploration of the upper gastrointestinal tract. In Parakou, this examination is requested in elderly people who often complain of epigastric pain. Non-tumorous and inflammatory gastropathy is the most common endoscopic lesion. Esophageal and gastric malignancies are uncommon in this population group. However, these tumorous lesions must be the dread of every doctor when faced with an elderly subject presenting digestive symptoms.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Organisation Mondiale de la Santé (2020) Décennie pour le vieillissement en bonne santé Stratégie et Plan d'action mondiaux sur le vieillissement et la santé 2016-2020: Vers un monde où chacun puisse vivre longtemps et en bonne santé. https://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_R3-fr.pdf
- [2] Tolo, N., Binan, Y., Apeti, S., Cisse, S.O., Traore, A., Keita, K., *et al.* (2023) La Fibroscopie Œsogastroduodénale chez le Sujet Âgé à Bamako: Une Étude de 121 Cas. *Health Sciences and Disease*, **24**, 157-161.
- [3] Dia, D., Guèye, M.N., Diouf, G., Cissé, C.A.B., Ndiaye, M.D. and Mbengue, M. (2019) Results of Upper Gastrointestinal Endoscopies in Elderly Patients at the General Hospital of Grand Yoff, Dakar, Senegal. *Gut Gastroenterology*, **2**, 1-3.
- [4] Ergenç, M. and Uprak, T. (2022) Esophagogastroduodenoscopy in Patients Aged 75 Years and Older: A Single-Center Study. *Cureus*, **14**, e21846. <https://doi.org/10.7759/cureus.21846>
- [5] Brown, D.C., Collins, J.S.A. and Love, A.H.G. (1989) Outcome and Benefits of Upper Gastrointestinal endoscopy in the Elderly. *Ulster Medical Journal*, **58**, 177-181.
- [6] Ryoichi, M., Naoki, H., Makoto, N., Kenro, H., Seiichiro, F., Yoshihiro, N., *et al.* (2018) Complications and Outcomes of Routine Endoscopy in the Very Elderly. *Endoscopy International Open*, **6**, E224–E229. <https://doi.org/10.1055/s-0043-120569>
- [7] Adanir, H., Bas, B., Pakoz, B., Günay, S., Camyar, H. and Ustaoglu, M. (2021) Endoscopic Findings of Gastro-Esophageal Reflux Disease in Elderly and Younger Age Groups. *Frontiers in Medicine*, **8**, Article ID: 606205.
- [8] Lawson-Ananissoh, L.M., Bouglouga, O., El-Hadji, Y.R., Bagny, A., Kaaga, L. and Redah, D. (2014) La fibroscopie digestive haute chez le sujet noir africain âgé. *Journal de la Recherche Scientifique de l'Université de Lomé*, **16**, 511-518.
- [9] Clere-Jehl, R., Schaeffer, M., Vogel, T., Kiesmann, M., Pasquali, J.-L., Andres, E., *et al.* (2017) Upper and Lower Gastrointestinal Endoscopies in Patients over 85 Years of Age; Risk-Benefit Evaluation of a Longitudinal Cohort. *Medicine*, **96**, e8439. <http://dx.doi.org/10.1097/MD.0000000000000843>
- [10] Bangoura, A.D., Bathaix, Y.M.F., Kouamé, G.D., Kissi, A.-K.H., Doffou, A.S., Mahassadi, K.A., *et al.* (2017) Apport de la Fibroscopie œsogastroduodénale (FOGD) dans la pathologie digestive du sujet âgé en Côte d'Ivoire. *Revue Internationale des Sciences Médicales*, **19**, 335-340.