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Congress Abstracts

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Table of Contents

1	ANGIOTENSIN RECEPTOR BLOCKER USE AND SURVIVAL IN GASTRIC CANCER PATIENTS: A NATIONWIDE COHORT STUDY FROM FINLAND	A. Auvinen
2	THE NEED OF CDH1 GERMLINE MUTATION SCREENING IN PATIENTS WITH GASTRIC CANCER IN THE WEST	M. Alloggio
3	THE IMPACT OF IMPLEMENTING CURRENT TREATMENT MODALITIES AND FEMALE SEX ON GASTRIC CANCER OUTCOMES, 2000–2016: A LONGITUDINAL NATIONWIDE COHORT STUDY	P. Aaltonen
4	RISK ASSESMENT QUESTIONNAIRE IN A WESTERN COMMUNITY TO IDENTIFY A GASTIC CANCER RISK POPULATION: THE GASTROSCREENING PROJECT	I. Benzoni
5	IMMUNOTHERAPY FOR GASTRIC CANCER: A SINGLE CENTER EXPERIENCE	I. Benzoni
6	HYPERSPETRAL TECHNOLOGY: AN INNOVATIVE TOOL THAT MAY CHANGE INTRAOPERATIVE STRATEGY AND HELP FOR PREVENTION OF ESO-GASTRIC ANASTOMOSIS LEAKAGE DURING ESOPHAGECTOMY	M.A. Bonino
7	PRELIMINARY RESULTS FROM THE USE OF A SYMPTOM RESPONSE QUESTIONNAIRE FOLLOWING PYLORIC DILATATION FOR DELAYED GASTRIC EMPTYING POST-OESOPHAGECTOMY	M. Chevally
8	RESECTION MARGIN STRATEGY IN GASTRIC CANCER SURGERY: THE EUROPEAN REMARCS (RESECTION MARGIN FOR CANCER OF THE STOMACH) SURVEY	M. Chevally
9	PRELIMINARY RESULTS OF SURGICAL AUDIT FOR OVERALL SURVIVAL FOLLOWING GASTRIC CANCER RESECTION IN PORTUGAL	P. Matos Da Costa
10	MACHINE LEARNING PREDICTION MODELS OF STAGE MIGRATION AFTER GASTRECTOMY FOR CANCER - A CASE AGAINST	P. Matos Da Costa
11	A ROLE OF NEGATIVE LYMPH NODES IN PROGNOSTICATION AFTER GASTRECTOMY FOR CANCER	P. Matos Da Costa
12	EVALUATION OF INTRAOPERATIVE PHOTOGRAPHS FOR THE DEFINITION OF A PROPER LYMPHADENECTOMY IN MINIMALLY-INVASIVE GASTRIC CANCER SURGERY – INITIAL RESULTS OF PHOTONODES STUDY	G. Dalmonte
13	PROGNOSTIC PERFORMANCE OF THREE LYMPHNODE STAGING SCHEMES FOR PATIENTS AFFECTED BY ADENOCARCINOMA OF THE ESOPHAGOGASTRIC JUNCTION	F. Di Schiena

14	THE PUMA STUDY: PATTERN OF DISTRIBUTION OF LYMPHNODE METASTASES IN GASTRIC CARCINOMA. MULTICENTER EUROPEAN OBSERVATIONAL STUDY	F. Filippini
16	FULLY ROBOTIC SIDE-TO-SIDE SEMI-MECHANICAL ANASTOMOSIS DURING IVOR-LEWIS ESOPHAGECTOMY: HOW WE DO IT	L. Fortuna
17	TRACHEO/BRONCHESOPHAGEAL FISTULA AFTER IVOR-LEWIS ESOPHAGECTOMY, A RARE BUT REAL COMPLICATION	L. Freire
18	MULTICENTER STUDY ON INCIDENCE AND TREATMENT OF MEDIASTINAL LEAKS AFTER ESOPHAGECTOMY (MUMELE 2)	U. Fumagalli Romario
19	IS GASTRIC CANCER LOCATED IN THE LESSER CURVATURE A DISTINCT ENTITY COMPARED TO THAT ONE LOCATED IN THE GREAT CURVATURE? A SINGLE WERTERN CENTER ANALYSIS	L. Graziosi
21	OMENECTOMY AS PART OF RADICAL SURGERY FOR GASTRIC CANCER: RESULTS OF A MULTICENTER PROSPECTIVE COHORT STUDY	K. Keywani
23	RESECTION MARGINS IN GASTRIC CANCER: RISK FACTOR ANALYSIS FOR RECURRENCE AND SURVIVAL	I. Mesquita
24	A PRAGMATIC APPROACH TO STAGE IV GASTRIC CANCER: RESULTS FROM THE PROSPECTIVE REGISTRY META-GASTRO AND A COMPARISON WITH GIRCG'S RETROSPECTIVE SERIES	S. Ministrini
25	OLIGOMETASTATIC GASTRIC CANCER. THE ANATOMIC DEFINITION BY THE META-GASTRO PROSPECTIVE OBSERVATIONAL REGISTER OF THE ITALIAN RESEARCH GROUP ON GASTRIC CANCER (GIRCG). FOCUS ON P AND H	S. Ministrini
26	THE IMPACT OF AGE ON POSTOPERATIVE OUTCOMES OF PATIENTS UNDERGOING TOTAL GASTRECTOMY FOR GASTRIC CANCER	L. Moletta
27	DOES NEOADJUVANT THERAPY INFLUENCE POSTOPERATIVE OUTCOMES OF PATIENTS UNDERGOING TOTAL D2 GASTRECTOMY FOR GASTRIC CANCER?	L. Moletta
45	AGE-DEPENDENT BENEFIT OF NEOADJUVANT TREATMENT IN ADENOCARCINOMA OF THE ESOPHAGUS AND GASTROESOPHAGEAL JUNCTION: A MULTICENTER RETROSPECTIVE OBSERVATIONAL STUDY OF YOUNG VERSUS OLD PATIENTS	K. Neuschütz
28	OCCULT TUMOR CELLS IN GASTRIC ADENOCARCINOMA LYMPH NODES – A SYSTEMATIC REVIEW OF REAL WORLD IDENTIFICATION TECHNIQUE	C. Neves Marques
29	THE HOLD STUDY _STOMACH CANCER ELECTIVE SURGERY MORBIDITY AND MORTALITY AT 90-DAY: A TUGS MULTINATIONAL AUDIT	C. Neves Marques
30	MODIFIED ENODSCOPIC VACUUM THERAPY FOR TREATMENT OF ESOPHAGOGASTRIC ANASTOMOTIC LEAK FOLLOWING IVOR-LEWIS ESOPHAGECTOMY - A CASE REPORT.	M. Nunes

31	A RANDOMIZED, MULTICENTER CLINICAL TRIAL COMPARING THE COMBINATION OF PERIOPERATIVE CHEMOTHERAPY AND PREOPERATIVE LAPAROSCOPIC HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY PLUS GASTRECTOMY TO PERIOPERATIVE CHEMOTHERAPY AND GASTRECTOMY ALONE IN PATIENTS WITH ADVANCED GASTRIC CANCER AT HIGH RISK OF PERITONEAL RECURRENCE (GASTRIC CHIMERA TRIAL) – FEASIBILITY STUDY	R. Pach
32	PROGNOSTIC EFFECTS OF THE EXTENSION OF RESECTION AFTER POSITIVE INTRAOPERATIVE PATHOLOGY DURING ONCOLOGIC RESECTION OF GASTRIC OR ESOPHAGOGASTRIC JUNCTION ADENOCARCINOMA	P. Plum
33	GASTRIC CANCER LATE RECURRENCE: A RARE CASE REPORT	P.F. Rebelo
34	THE 3D RECONSTRUCTION AND MODELING IN FORECASTING FUNCTIONAL RESULTS OF JEJUNOGASTROPLASTY AFTER TOTAL GASTRECTOMY FOR ACUTE BLEEDING GASTRIC CANCER	E. Shepetko
35	BRAIN METASTASIS INCIDENCE IN GASTRO-ESOPHAGEAL CANCER: A META-ANALYSIS	M. Sleiman
36	DEFINING BENCHMARKS FOR FUNCTION-PRESERVING ONCOLOGICAL GASTRECTOMY – A MULTICENTER ANALYSIS	J.S. Kim
37	ASSESSING CLINICAL OUTCOMES OF ROBOTIC AND LAPAROSCOPIC GASTRECTOMY USING PROPENSITY SCORE MATCHING: A 5-YEAR STUDY FROM A HIGH-VOLUME KOREAN GASTRIC CANCER CENTER	J.S. Kim
38	WESTERN VALIDATION OF KOQUSS-40 QUESTIONNAIRE ASSESSING QOL OF GASTRIC CANCER PATIENTS AFTER GASTRECTOMY	F. Tedone
39	ONCOLOGICAL CHARACTERISTIC OF GASTROINTESTINAL STROMAL TUMORS OF THE STOMACH, THE ESOPHAGUS, AND THE GASTROESOPHAGEAL JUNCTION: DATA FROM THE GERMAN CLINICAL CANCER REGISTRY GROUP	M. Thomaschewski
40	A PICTURE OF BODY MASS INDEX (BMI) IN GASTRIC CANCER TREATMENT: THE ITALIAN GROUP OF GASTRIC CANCER RESEARCH (GIRCG) EXPERIENCE	L. Torroni
41	GASTRIC CANCER IN THE YOUNG ADULT. NEW INCIDENCE FROM EAST TO WEST?	L. Torroni
42	DISCONTINUATION OF NEOADJUVANT THERAPY IS NOT ASSOCIATED WITH WORSE POSTOPERATIVE SHORT-TERM OUTCOMES IN ELDERLY PATIENTS (≥ 70 YEARS) WITH RESECTABLE GASTRIC CANCER	J. Wang
43	THE ABDOMINAL DRAIN IN GASTRECTOMY TRIAL: A MULTICENTER NON-INFERIORITY RANDOMIZED TRIAL ON THE USE OF PROPHYLACTIC DRAIN AFTER GASTRECTOMY	J. Weindelmayr
44	AN IMAGE-BASED AI ALGORITHM FOR QUICKLY AND RELIABLE EVALUATING CELLULAR SENESENCE OF GASTRIC ORGANOID	Y. Yu

1.

ANGIOTENSIN RECEPTOR BLOCKER USE AND SURVIVAL IN GASTRIC CANCER PATIENTS: A NATIONWIDE COHORT STUDY FROM FINLAND

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Background: There has been increasing clinical evidence that angiotensin receptor blockers (ARBs) have a favourable impact on survival among patients with various types of cancer, including pancreatic, colorectal, and prostate cancer. Similar results have been obtained for gastric cancer, however, this is based on only a few studies.

Materials and methods: Data on gastric cancer patients combined with their ARB prescription purchase data were collected from Finnish national registries. Cox regression analysis was used to analyse the differences in overall survival (OS) between ARB users and non-users in the post-diagnostic period.

Results: A cohort of 1372 histologically confirmed gastric cancer patients with staging information diagnosed during 2011-2016 was identified with follow-up until the end of 2020. Of these, 112 had ARB use in the post-diagnostic period and 1190 had died during follow-up. Statistically significant improvement of OS was found in the ARB user group [adjusted hazard ratio (HR) 0.77, 95% confidence interval (CI) 0.77-1.00; $p=0.047$] compared to the non-user group.

Conclusions: The use of ARBs might improve survival outcomes among gastric cancer patients. The results support previous findings assessing survival and ARB use among gastric cancer patients.

2.

THE NEED OF *CDH1* GERMLINE MUTATION SCREENING IN PATIENTS WITH GASTRIC CANCER IN THE WEST

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ABSTRACT

Objectives:

Hereditary Diffuse Gastric Cancer (HDGC) is an autosomal dominant cancer syndrome predominantly caused by germline mutations in the tumour suppressor gene *CDH1*. 1-3% of Gastric Cancers (GC) arise in the context of HDGC, however the screening for *CDH1* germline mutations is not carried out systematically in Europe. The aim of the present study is to show the results of *CDH1* screening in an Italian centre.

Methods:

It is a retrospective observational study that involves two centres belonging to the Italian Research Group for GC (GIRCG). From January 2011 to December 2022, 53 patients, diagnosed with DGC at Upper GI Surgery of Verona and meeting the criteria of the different versions of the International Gastric Cancer Linkage Consortium guidelines, were tested at Biosciences Laboratory, Istituto Romagnolo per lo Studio e la Cura dei Tumori (IRST) IRCCS, Meldola.

Results:

Six different germline mutations were found: 5 point mutations (c.781G>T p.Glu261Ter; c.360delG p.His121ThrfsTer94; c.1137G>A p.Thr379=; c.1565+1G>A p.?; c.1062delG p.Leu355Ter) and 1 deletion (DEL 1-2). In *CDH1*-negative patients, 2 showed a germline mutation in other cancer predisposition genes (*BRCA1* and *ATM*). The screening of 40 relatives of index cases allowed the identification of 25 mutation carriers, 9 of them underwent prophylactic total gastrectomy. 23 patients underwent to surgery due to clinically detectable tumours or positive biopsies during endoscopic surveillance. Of note the youngest case of early SRC tumours detected during endoscopy was aged 15 years old. During surgical operation, 10 patients required an additional oesophageal resection due to the presence of gastric mucosa at the extemporary frozen section, despite the proximal section was made above the cardia.

Conclusions:

Our experience highlights that the *CDH1* genetic screening should be absolutely offered to high-risk Western patients, in agreement with the international guidelines. A prophylactic gastrectomy could be indicated *CDH1* mutation carriers with a dramatic impact in controlling cancer development.

3.

THE IMPACT OF IMPLEMENTING CURRENT TREATMENT MODALITIES AND FEMALE SEX ON GASTRIC CANCER OUTCOMES, 2000–2016: A LONGITUDINAL NATIONWIDE COHORT STUDY

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Objectives: The implementation of current treatment modalities and their impact on nationwide gastric cancer outcomes remain poorly understood. Biological differences between females and males could impact survival. We aimed to analyze rates of gastric surgery, chemotherapy, and radiotherapy as well as changes in overall survival among gastric cancer patients in Finland. **Methods:** Data on gastric cancer patients were collected from national registries. Cox regression analysis and the Kaplan–Meier method were used to analyze differences in survival. We compared patients diagnosed in 2000–2008 and 2009–2016. **Results:** We identified 9223 histologically confirmed gastric cancer patients of which 5147 (56%) were diagnosed in 2000–2008 and 4049 (44%) in 2009–2016. Gastric surgery rate decreased from 44% (n=2282) to 34% (n=1368; $p<0.001$). The proportion of gastric surgery patients who underwent preoperative oncological treatment increased from 0.5% (n=12) to 16.2% (n=222) between the calendar periods ($p<0.001$) and was 30% in 2016. The median overall survival (OS) improved from 30 months [95% confidence interval (CI) 28–33] to 38 months (95%CI 33–42; $p=0.006$) and the period 2009–2016 independently associated with a lower risk of death [hazard ratio (HR) 0.78, 95%CI 0.70–0.87] among patients who underwent gastric surgery. Females exhibited a lower risk of death (HR 0.88, 95%CI 0.81–0.97) among patients who underwent gastric surgery. **Conclusions:** Preoperative oncological treatment was gradually introduced into clinical practice and OS among gastric surgery patients improved. Moreover, female surgical patients exhibited a better survival than male patients.

4.

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Poster Presentation

Title:

RISK ASSESMENT QUESTIONNAIRE IN A WESTERN COMMUNITY TO IDENTIFY A GASTIC CANCER RISK POPULATION: THE GASTROSCREENING PROJECT

Introduction

Nowadays there is no screening test approved on the larger scale for stomach cancer even if gastric cancer represents one of the leading causes of death from cancer in Italy.

The project aims are the creation of an easily administrable tool to detect gastric cancer risk factors and “alarm symptoms” in the target population and the identification of patients in need of EGDS.

Methods

This paper describes the first study phase, such as the administration of the questionnaire to a first sample of 5000 people aged from 40 to 80 years and the preliminary results. GASTROFORM is an online questionnaire (<https://it.research.net/r/GASTROFORM>) collecting data about personal and anthropometric data, risk factors, upper GI nonspecific symptomatology, alarm symptoms, recent EGDS

Results:

4426 valid questionnaires were submitted through the online form in November 2021, 612 of them (13,82%) reported at least one alarm symptom: those patients need to undergo EGDS as soon as possible. From an epidemiological point of view we expect to increase the rate of diagnosis in Barrett esophagus (from 1,8% to 5-8%), atrophic gastritis (from 9% to 20-30%) and early gastric cancer (from 0,019% to 1-2 %)

Conclusions

It is possible to administer a questionnaire providing useful information to identify a population most likely to have significant endoscopic findings in early diagnosis during a screening EGDS.

5.

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Poster Presentation

IMMUNOTHERAPY FOR GASTRIC CANCER: A SINGLE CENTER EXPERIENCE.

Objectives: Immune checkpoint inhibitors (ICIs) are a new standard of care in the treatment of locally advanced unresectable or metastatic gastric cancer (GC). ICIs are routinely used alone or in combination to chemotherapy for patients with PDL1-CPS-positive or microsatellite-instability-high (MSI-H) or mismatch-repair-deficient (dMMR) advanced GC.

Materials: we are presenting four cases (one female, three males) treated with neoadjuvant immunotherapy for gastric adenocarcinoma (one case of poorly cohesive histology, one case of undifferentiated carcinoma and two cases of tubular adenocarcinoma). Mean patients age was 77 (min 72-max 80), mean PS (ECOG) was 0,5 (min 0- max 2). In all cases dMMR was found. Three of our patients received 4 cycles of Nivolumab 240 mg + FOLFOX (one every two weeks) and they did not experience any major adverse reaction or weight loss. One patient was treated with 5 cycles of Pembrolizumab 200 mg (one every three weeks).

Results: In all cases underwent to surgery a significant tumor shrinkage was found: in one case from cT4a to ypT1a, in two cases from cT3 to ypT0. As far as lymphnodes are concerned, in all cases we assisted to a nodal regression (from cN2 to cN0 in one patient, from cN2 to ypN0 in one patient, from cN1 to ypN0 in two cases).

Post operative course was uneventful and they were discharged between post operative day (POD) 5 and POD 15.

In one 72-years-old male we assisted to a complete radiological response that allowed to avoid surgery; he is currently free from disease recurrence and the clinical-instrumental follow up is ongoing ..

Conclusions: Immunotherapy is an extremely promising tool in the neoadjuvant treatment of advanced GC and can improve tumor shrinkage and oncological outcomes. Further studies are needed to confirm the encouraging current results.

6.

HYPERSPECTRAL TECHNOLOGY: AN INNOVATIVE TOOL THAT MAY CHANGE INTRAOPERATIVE STRATEGY AND HELP FOR PREVENTION OF ESO-GASTRIC ANASTOMOSIS LEAKAGE DURING ESOPHAGECTOMY.

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Objective:

This study aims to reduce eso-gastric anastomotic leakage (AL) after esophagectomy by evaluating the potential of hyperspectral imaging (HSI) to quantitatively assess tissue oxygenation and perfusion. Previous research showed that intravenous indocyanine green fluorescence reduced AL risk, especially when performing McKeown esophagectomy, but that this evaluation is only qualitatively. This study suggests a quantitative approach to enhance outcomes.

Methods:

An 82-year-old woman with an 8cm proximal esophageal perforation underwent esophagectomy with a cervical terminal stoma and feeding jejunostomy. After four months, reconstruction was planned. Due to the higher AL risk with cervical anastomosis, we utilized HSI to evaluate the anastomosis level.

We performed a laparotomy, with mobilization of the stomach preserving the vascular arcade. We then cut short gastric vessels, left gastric artery and vein. Stomach tubulisation was done by 6 charges of violet 45mm endoGIA. We then made a cervicotomy and pulled the stomach up retrosternally. HSI analysis revealed a 59% O₂ saturation at the initially chosen anastomosis site, whereas a few centimetres distal, it increased to 80%. Consequently, we adjusted the operative strategy, performing a terminal-terminal anastomosis at the 80% saturation level.

Results:

HSI played a pivotal role in decision-making. It indicated lower O₂ saturation at the initial anastomosis site, prompting a change to the 80% saturation level. Subsequent assessments with oral contrast and endoscopy, on the 5th postoperative day and at 3 months, showed no stenosis or AL.

Conclusion:

While this study represents an initial experience, HSI holds promise in esophagectomy, particularly for cervical anastomosis cases. Its ability to provide quantitative oxygenation and perfusion data informed decisions and led to favourable outcomes without stenosis or AL. Further research is needed to fully understand its role in eso-gastric surgery and its potential to enhance patient outcomes. Nevertheless, HSI stands as an innovative surgical tool with significant potential.

7.

Preliminary results from the use of a symptom response questionnaire following pyloric dilatation for delayed gastric emptying post-oesophagectomy

Authors

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Background

Patient symptom burden following oesophago-gastrectomy is high with numerous potential underlying causes which can often overlap. Diagnostic test results and the symptom response to a given intervention may provide important insights, yet there are no validated questionnaires to assess symptom response. Delayed gastric emptying is a common problem after oesophagectomy, significantly affecting patients' quality of life. The most commonly used treatment option is an endoscopic pyloric dilatation.

Methods

With patient involvement, a symptom response to treatment questionnaire was developed based on validated EORTC symptom questions. Although designed to assess symptom response to any intervention, consecutive patients referred for suspected delayed gastric emptying who received an endoscopic pyloric dilatation from a single center were included in this prospective study. Patients were contacted by telephone at two and four weeks after the procedure to complete the symptom response questionnaire.

Results

27 patients responded to the questionnaire at 2 and 4 weeks. The average age of the group was 64.85 years (+/- 8.05), and among them, 21 individuals (77%) were male. The main reported symptoms were dysphagia in 15 patients (58%), reflux in 6 patients (21%), early satiety, regurgitation, poor oral intake and bloating in two patients each (5%). A second symptom was reported by 14 patients (50%). An improvement in symptom frequency was noted in 23 patients (85%) at two weeks. A subsequent worsening in the patient symptom frequency was noted in 3 patients (8.8%) between two and four weeks. Patients rated the ease of completing the questionnaire from easy to very easy in 100% of the cases.

Conclusion

The symptom response questionnaire aimed at evaluating the impact of pyloric dilatation was easily implemented and well-received by patients. By providing a structured and patient-centred approach, this questionnaire can serve as a basis for monitoring and understanding the effectiveness of endoscopic interventions in improving the symptom burden for patients with delayed gastric emptying. An electronic version of the questionnaire has been developed and will be tested in the near future.

8.

Resection margin strategy in gastric cancer surgery: the European REMARCS (Resection MARGin for Cancer of the Stomach) survey

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Objective

Surgery with negative resection margins and appropriate lymphadenectomy is the only curative treatment for gastric cancer. The adequate proximal resection margins length in European guidelines is between 5 to 8 centimeters depending on the histological subtype. However, these recommendations are based on outdated studies with limited data. The peri-operative treatment modalities have evolved, and the application of these resection margin cut-offs may not be as uniform as before. The aim of our study was to assess the current European practice in gastric cancer surgery with particular attention to resection margins.

Method

A panel of 13 international experts composed of surgeons, pathologists, and oncologists developed a web-based survey containing 45 questions about center demographic, resection margin strategy, and post-operative care. The survey was distributed to Upper Gastrointestinal (UGI) surgeons through UGI and visceral surgical societies mailing lists and social media between February and June 2022. Participants were excluded if they did not answer a minimum of 80% completion of the questionnaire).

Results

172 surgeons from 154 centers in 19 countries responded to the survey. The most represented countries were Germany 60 (35%), Switzerland 30 (18%), Italy 16 (9%), and France 13 (8%).

92 (54 %) of the responders were working in a university hospital, 66 (39 %) in a general hospital, and 13 (8%) in a private hospital. The mean surgical years' experience of the responders was 20.8 (SD +/- 9.4) and their caseload was 23.2 cases per year (SD +/- 21.8). For intestinal histologic type gastric tumor, a proximal resection margin length of a minimum of 5 centimeters was advocated by 119 (77%) of the responders. For diffuse histologic cases, a resection margin of a minimum of 8 cm was applied by 98 (63%) of the surgeons. Macroscopic inspection of the specimen was routinely performed by 110 respondents (64%). A frozen section was used for every case by 73 surgeons (43%), only in selected cases by 81 surgeons (48%), and only in total gastrectomy for 16 surgeons (9%). Intra-operative endoscopy evaluation of the proximal resection margin was performed by 38 (22%) of the participants. Table 1 summarizes the resection margin practice according to the hospital level of care and the annual caseload.

Conclusion

The real-world data from our questionnaire shows that the length of resection margins proposed by actual guidelines are not strictly applied in European centers. Further data from clinical research are needed to standardize resection margin cut-off. This could help European surgeons to propose more organ-sparing strategies to their patients.

	University hospital (n=92)	General hospital (n=66)	Private hospital (n=13)		Low volume (n=57)	Mild volume (n=70)	High volume (n=44)	
Resection margin for intestinal type								
2 cm, n (%)	6 (7)	5 (8)	4 (36)	p= 0.19	7 (13)	5 (8)	3 (8)	p=0.98
3 cm, n (%)	11 (13)	9 (15)	-		6 (11)	9 (14)	5 (14)	
5 cm, n (%)	60 (71)	41 (69)	6 (55)		36 (67)	45 (71)	26 (70)	
8 cm, n (%)	3 (4)	3 (5)	1 (9)		3 (6)	2 (3)	2 (5)	
>8 cm, n (%)	4 (5)	1 (2)	-		2 (4)	2 (3)	1 (3)	

Resection margin for diffuse type

2 cm, n (%)	3 (4)	1 (2)	1 (9)	p=0.85	2 (4)	2 (3)	1 (3)	p=0.97
3 cm, n (%)	4 (5)	5 (8)	-		3 (6)	3 (5)	3 (8)	
5 cm, n (%)	25 (30)	14 (24)	3 (27)		13 (24)	17 (28)	12 (31)	
8 cm, n (%)	36 (43)	25 (42)	5 (45)		22 (41)	27 (44)	17 (44)	
>8 cm, n (%)	16 (19)	14 (24)	2 (18)		14 (26)	12 (20)	6 (15)	

Table 1. Resection margin length practice for proximal resection margin during gastric cancer surgery according to the hospital level of care and the annual case load (low volume < 10 cases per year, mild volume: 10 – 30 cases per year, high volume: > 30 cases)

9.

PRELIMINARY RESULTS OF SURGICAL AUDIT FOR OVERALL SURVIVAL FOLLOWING GASTRIC CANCER RESECTION IN PORTUGAL

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Introduction: In Europe, specifically in Portugal, gastric cancer ranks 6th in terms of incidence and 8th in terms of mortality. Previous surgical audit studies have predominantly focused on perioperative mortality. The objective of our study is to assess the overall long-term survival in a substantial patient cohort.

Methods: We conducted a retrospective investigation involving 830 consecutive patients who underwent radical gastrectomy for gastric cancer between 2002 and 2020 at two referral hospitals in Portugal. We examined a range of variables encompassing tumor characteristics, and surgical procedures. The main endpoint of the study was overall survival (OS).

Results: Among the patient cohort (830), 69.5% (577) presented advanced clinical stages (\geq II). Histologically, 52.4% (435) were classified as intestinal, 26.7% (222) as diffuse, 19.5% (162) as mixed, and 1.3% (11) as other types. Staging laparoscopy was performed in 53.4% (448) of the cases. The distribution by pathological stages were as follows: 30.0% for stage I, 27.2% for stage II, and 42.8% for stage III. Total radical gastrectomy was performed in 62.8% (521) of cases, and an extensive lymphadenectomy (\geq LD1+) was conducted in 86.5% of patients (718). Additionally, 46.5% (386) of patients received perioperative or adjuvant chemotherapy. The median OS was 3.4 years, with estimated one, three, and five-year OS rates of 77.7%, 60.6%, and 51.7%, respectively. The 5-year OS rates according to pathological staging were 78.5% for stage I, 63.8% for stage II, and 25.1% for stage III. Moreover, locally advanced cases that underwent perioperative or adjuvant chemotherapy exhibited significantly higher OS rates compared to those treated with surgery alone.

Conclusions: The observed survival rates in this 18-year series rank within the higher spectrum of Western literature. However, due to the absence of information regarding oncological outcomes in gastric cancer surgery at the national level, these results cannot be directly compared with national statistics.

10.

MACHINE LEARNING PREDICTION MODELS OF STAGE MIGRATION AFTER GASTRECTOMY FOR CANCER - A CASE AGAINST.

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Objectives

Escalating lymphadenectomy impact prognosis. If this is related to increasing the number of metastatic lymph nodes (mLn), stage migration (SM) and Will Rogers phenomenon are meaningful. As the number of negative nodes (nLn) is predominant in larger lymphadenectomies, our hypothesis is that SM is a questionable player in global prognostication.

Using machine learning algorithms, primary endpoints were: (i) to analyze simulated probabilities of SM *if to all the pN+ patients* were offered at least a 26 nodes dissection; (ii) to compare Overall Survival (OS) of native and computed TNM stages.

Methods

Two centers prospectively collected data from 837 patients with gastric cancer, who underwent potentially curative surgery, and then merged them into a single integrated dataset.

SM planned scenarios: 1) *Scenario A - Personal based* - probabilities were computed individually through proportionalities of the individual node ratio (nR) to estimate a new computed number of mLn. The nR is given by the formula: total number of nodes/mLn.

2) *Scenario B - Populational based* - probabilities were estimated assuming an exponential distribution. The identified exponential distribution was used to estimate the new computed mLn. Calculated restaging was adjusted for each patient. Co-factors identification by a random-forest model, learned through the ski-learn package, trained over the estimated stage migrations.

Results

Probability distribution of mLn followed an exponential, independent of the dissection intervals. From the estimations made, subclasses migrations were identified to be 28% and 7% in *scenarios A and B*, respectively. Stage migration was 3% and 2% respectively.

No statistically significant differences were observed in the OS among native and projected stages for scenarios A and B ($p>0.05$).

Major co-factors to SM: lymphadenectomy and nR- lower values lead to higher probabilities of SM.

SM models achieved 96% accuracy for both scenarios, with A reaching an AUC of 0.97 and for B 0.90.

Conclusion

SM was residual in both scenarios and null in its impact on OS.

Consistent support for our hypothesis was obtained: the Will Rogers phenomenon was not supported.

11.

A ROLE OF NEGATIVE LYMPH NODES IN PROGNOSTICATION AFTER GASTRECTOMY FOR CANCER

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Objectives

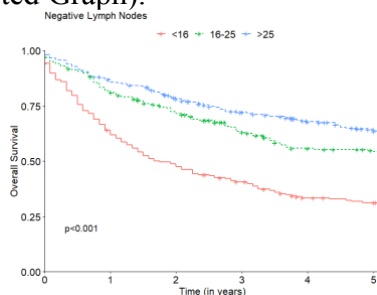
To expand lymphadenectomy associated with gastrectomy for cancer impact prognosis. As the number of negative nodes (nLN) is predominant in larger lymphadenectomies, our hypothesis is that the number of harvested nLN is a meaningful player in global prognostication. The aim of this study is to address the impact of increasing the number of nLN of the global harvested sample on Overall Survival (OS).

Methods

This was an observational retrospective study and data of patients with gastric cancer, who underwent potentially curative surgery, was prospectively collected from two centers. The extent of the lymphadenectomy was recorded according to standard intervals. Propensity score matching was utilized. OS was estimated using the Kaplan–Meier method. Survival between groups was compared by the log-rank test. A p value < 0.05 was considered significant. To compute OS, patients were grouped within the intervals of harvested nLN: A <16, B 16 to ≤ 25, and C >25.

Results

Data from 837 patients was collected. 58.1% were male and 41.9% female. Median age was 70 years (24-95). Patients were considered to be well staged if the number of harvested nodes were ≥ 16 (86%). A total of 353 patients were pN0. 27 patients had no nLN. The probability distribution of metastatic LN (mLN) was found to follow an exponential distribution, being independent of the dissection intervals used. Mortality: at 30 days was 2.2% and at 90 day was 7.7%. OS survival at 5 years was 51.7% (95% CI: 48.3-55.4). The distribution of patients per nLN group was as follows: A - 112, B - 268 and C - 450. The OS curves of nLN intervals were statistically different (p<0.001, inserted Graph).



Discussion and Conclusion

The influence of the number of negative nodes on OS was statistically significant. Therefore, further research on the hidden oncologic microenvironments within negative nodes should be implemented. Consistent support of our hypothesis was obtained.

12.

EVALUATION OF INTRAOPERATIVE PHOTOGRAPHS FOR THE DEFINITION OF A PROPER LYMPHADENECTOMY IN MINIMALLY-INVASIVE GASTRIC CANCER SURGERY – INITIAL RESULTS OF PHOTONODES STUDY

Objectives

Node dissection is a key factor in gastric cancer surgery. Current evaluation systems, based on the number of nodes retrieved, can be influenced by several factors other than the quality of node dissection itself. Moreover, they do not evaluate residual nodes. The spreading of minimally-invasive surgery has facilitated the sharing of intraoperative images of the surgical field at the end of node dissection. It is likely that, based on the review of intraoperative images, a reliable parameter of the quality of node dissection could be provided. The protocol we present aims to give a “photo-score” of the node dissection performed in minimally-invasive gastrectomy.

Methods

We designed a national multicentric prospective observational study with a 2-year enrollment period and 3 years of follow-up. All patients undergoing either total or subtotal curative minimally-invasive gastrectomy with D2 node dissection for gastric adenocarcinoma will be enrolled. A set of 5 forced-frame intraoperative images, showing node dissection after its completion, was identified by a panel of surgeons expert in minimally invasive gastric cancer surgery. Anatomical landmarks for each frame were strictly defined. Quality of lymphadenectomy for each station will be assessed by three reviewers and marked with a score from 1 to 3 (poor, sufficient, excellent) in order to obtain a sum score for each patient. Correlation between the photo score and pathology report, recurrence rate, and disease-free survival will be investigated.

Results

The minimally invasive panel of our research group validated the protocol after reaching an inter-observer agreement of 80% in the photo score on a set of test images following the framing criteria. In December 2022 patients enrollment started. The study involves 9 Italian center, we will present the initial results with patients enrolled up to September 2023.

Conclusions

The proposed score could help in refining post-operative staging and subsequent treatment decision in patients undergoing gastrectomy for gastric cancer.

13.

PROGNOSTIC PERFORMANCE OF THREE LYMPHNODE STAGING SCHEMES FOR PATIENTS AFFECTED BY ADENOCARCINOMA OF THE ESOPHAGOGASTRIC JUNCTION

F. Di Schiena, N. Natalizi, M. Longaroni, L. Graziosi, A. Donini

Background

Adenocarcinoma of the esophagogastric junction (EGJ) a worldwide problem because of its increasing incidence in both Western and Asian countries. Due to the lack of a lymph node staging schemes lymph node metastasis still remains a clinical issue in AEG patients.

Objectives

This study compares the prognostic performance of three different lymph node schemes: the number of lymph node metastases (LNMs), the positive lymph node ratio (LNR) and the log odds of positive lymph nodes (LOODS).

Methods

We retrospectively analysed 44 patients [median age 74.04 (46-86) years, 65.9%males] underwent surgery between 2008 and 2020. D1 or D2 or D3 lymphadenectomy was performed in 18.18%, 45.45% and 36.37% of patients respectively. Primary tumor location was classified as Siewert I (5; 11.36%), Siewert II (9; 20.45%) and Siewert III (30; 68.18%).

Results

Our centre analysed 5y-Overall Survival (39.53%) and 5y-Disease Free Survival (56.6%) over a median follow up of 30.16 (8-201) months in order to verify the prognostic performance of LNM, LNR and LOODS by comparing ROC curves and identifying potential cut-offs with Youden Index.

Prognosis could be clearly stratified into four groups: LOODS < -83.61, $-83.61 \leq \text{LOODS} < -33.11$, $-33.11 \leq \text{LOODS} < 19.45$, $\text{LOODS} \geq 19.45$. (P<0.005, 50 months survival rates (99.8%,36.8%, 21.42% and 0%)).

While the AUC value for LNMs scheme was below 0.7, the LNR showed a better prognostic performance (AUC 0.727).

Conclusion

Taken together, our study demonstrates that the LOODS and the LNR staging system is more reliable than the TNM staging system in evaluating prognosis of AEG patients after curative resection. However, more studies are necessary to better define a predictive lymph node staging system in order to better identify patients at high risk to develop recurrences after curative surgery.

14.

THE PUMA STUDY: PATTERN OF DISTRIBUTION LYMPH NODE METASTASES IN GASTRIC CARCINOMA. A MULTICENTER EUROPEAN OBSERVATIONAL STUDY

AUTHORS: : Filippini F, Alloggio M, Torroni L, Keywani K, Giacomuzzi S, Morgagni P, van Berge Henegouwen, de Manzoni G, Bencivenga M, Gisbertz SS

INTRODUCTION

There is now general agreement that D2 lymphadenectomy should be considered as the standard of care for curative intent surgery in patients with advanced gastric cancer (GC). No data are currently available on incidence and distribution of nodal metastases according to depth of tumor invasion, location and histological subtype in the West. This information would pave direct tailored approaches with potential impact on complications and survival. Moreover, some variations seem to persist in the approach to lymphadenectomy among European surgeons. This variability is related to multiple factors as BMI, previous abdominal surgery and surgical approach (open/minimally invasive). These factors could be responsible for different compliance to standard lymphadenectomy, number of retrieved lymph nodes and survival discrepancies.

AIMS

This study aims to investigate the distribution of LN metastases according to tumour's characteristics and adherence to planned lymphadenectomy across dedicated surgical Centers throughout Europe.

METHODS

PUMA study is a multicenter international observational prospective study. Duration of the study will approximately be 7 years: 2 years inclusion, 5 years follow-up. Study population will include 2000 patients with primary surgically resectable (cT1-4a, N0-3, M0) adenocarcinoma of the stomach or esophago-gastric junction tumor (Siewert II and III), treated with curative intent (included D1+, D2 or more extended lymphadenectomy). Major endpoint of the study will be the distribution of lymph node metastases, according to tumor histology, tumor site, depth of invasion and size, molecular subtype assessed by IHC (HER2, EBV, PDL1, MSI) and administration of neoadjuvant treatment. The secondary endpoint will be the rate of compliance (station by station) to the planned extent of lymphadenectomy. As part of this study, all video data of operations will also be collected and stored to develop machine learning/AI software dedicated to lymphadenectomy for GC to be integrated with robotic platforms.

CONCLUSIONS

This study will help in standardize surgical technique of gastrectomy and will provide a roadmap to guide a more tailored lymphadenectomy for gastric cancer in the West.

16.

Fully robotic side-to-side semi-mechanical anastomosis during Ivor-Lewis esophagectomy: how we do it

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Objectives

Different techniques of intrathoracic esophagogastric anastomosis have been proposed during robotic Ivor-Lewis esophagectomy. However, there still uncertainty on which type of anastomosis (hand-sewn, circular or linear-stapled) is correlated with lower incidence of postoperative complications. Potential advantages in terms of anastomotic leakage (AL) and stenosis (AS) have been demonstrated in association with a linear-stapled anastomosis. We here report our experience with a fully robotic technique of side-to-side semi-mechanical anastomosis.

Methods

Once the intrathoracic esophageal dissection and lymphadenectomy is completed, the gastric conduit is pulled in the thorax and adequate local microcirculation is assessed with indocyanine green fluorescence. The esophagus is now sectioned about 3 cm above the arch of the azygos vein and the gastric conduit is anchored to the muscular layer of the proximal esophagus using two silk sutures, thus helping the aligning of the two stumps. A short gastrotomy is performed on the anterior wall of the gastric conduit approximately 5 cm from the upper edge. The esophageal mucosa is now anchored to the gastric wall using two silk sutures and a robot-integrated endostapler (45 mm blue cartridge) is introduced into the chest. The anvil and the cartridge are advanced through the esophagus and the gastrotomy, respectively, and the stapler is fired. The nasogastric tube is positioned into the gastric conduit and the anterior aspect of anastomosis is closed using two barbed sutures (*Stratafix*, Johnson & Johnson, New Jersey, USA). These two sutures are initially anchored at the lateral margins of the gastrotomy and then are advanced medially in a running fashion and tied together. Other five to six silk sero-muscular sutures are now placed in order to reduce the tension on the anastomosis which is also covered with a portion of greater omentum.

Results

Between 2018 and 2022, a total of 38 patients underwent a robotic Ivor-Lewis esophagectomy with a side-to-side semi-mechanical anastomosis. There were no conversions to open surgery. Three patients (7.9%) experienced minor AL which was successfully treated conservatively using endoscopic vacuum therapy (Eso-SPONGE, B. Braun, Melsungen, Germany). In 2 patients (5.3%) AS occurred four-five weeks 3-4 weeks after operation. Both patients were successfully treated with endoscopic dilation.

Conclusions

Our experience in the setting of robotic Ivor-Lewis procedure seems to demonstrate that a linear, side-to-side semi-mechanical anastomosis can be adopted with a very low incidence of anastomotic-related complications.

17.

Title : TRACHEO/BRONCHESOPHAGEAL FISTULA AFTER IVOR-LEWIS ESOPHAGECTOMY, A RARE BUT REAL COMPLICATION

Authors: Lígia Freire, Mara Nunes, João Pedro Pereira, Tiago Rama, Pedro Moreira, Pedro Valente, Marina Morais, Bruno Silva, Emanuel Guerreiro

Objectives:

The trachea/bronchoesophageal fistula (TBEF) after Ivor-Lewis esophagectomy is a rare complication (incidence 0,3-3,9%), associated with substantial morbidity and mortality (< 57%). There is no consensus about the best way to manage it. We present a case with TBEF and a new treatment approach.

Methods/Results:

Male, 55 years, previous history of COPD, smoke and BMI 18,29Kg/m². Present a squamous cell carcinoma of the distal esophagus (uT3N2M0) with good tumor response to preoperative chemoradiation. An Ivor-Lewis esophagectomy was performed. Five days after surgery, he presents with fever and SIRS. CT reveal a partial dehiscence of the esophagogastric anastomosis with right pneumonia and mediastinitis. Antibiotic and antifungal therapy was initiated and a metallic stent was placed endoscopically. One week after, CT present a periesophageal collection and percutaneous drainage was performed. He begins to report coughing when the drain was being washed. A TBEF was confirmed on CT. The prosthesis was repositioned and he was discharged tolerating oral diet.

Several endoscopic revisions show fistula maintenance, so we try a vacuum system: using a nasojejunal tube, a gauze wrapped in a fenestrated plastic was put on the extremity of the gastric port, under vacuum therapy, and left near the fistulous orifice. The jejunal port was left for feeding. One week after it was possible to closure the fistulous orifice with an OTSC with TBEF's resolution, six months after surgery.

Conclusions:

The literature about TBEF are mainly case reports and the studies present a small number of cases. As a consequence, no ideal therapeutic principle can be recommended. The choice of treatment needs to be based on individual patient's condition. We present a case of a chronic TBEF treated with a non-invasive approach, easy to apply and associated with low cost.

18.

MULTICENTER STUDY ON INCIDENCE AND TREATMENT OF MEDIASTINAL LEAKS AFTER ESOPHAGECTOMY (MUMELE 2)

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Objectives

Treatment of anastomotic leaks (MAL) after Ivor Lewis esophagectomy (ILE) includes conservative, endoscopic or surgical management. Endoscopic vacuum therapy (EVAC) is a routine approach for MAL although its results are not defined. Aim of this work is to describe the incidence of MAL, their treatment and results, with reference to EVAC, among patients submitted to ILE in 3 Italian high volume centres routinely using EVAC among treatments for MAL.

Methods

All patients submitted to ILE independently of the access route for the thoracic phase, between sept 2018 – march 2023 were included in the study.

Results

681 patients had ILE during the study period; 88 (12,9%) had a MAL. MAL rate for open, MI and robotic esophagectomy were 11,5%, 13,4% and 14,8%. Global and specific 30 and 90-day mortality rate for MAL were 0,9 and 2,1% and 6,8 and 15,9% respectively. There were 6 type 1, 43 type 2 and 39 type 3 MAL. A nonoperative management (NOM) as a 1st line treatment was chosen in 62 patients (70,5%). The most frequent NOM and operative management (OM) were EVAC (62,9%) and anastomotic redo (53,8%). Diversion was the OM for 7 patients (17,9%), 3 of whom died. The 1st treatment proved successful in 40 patients (45,4%). EVAC alone was successful in 35,9% of patients as 1st line treatment; any line endoscopic treatment including EVAC was successful in 79% of NOM and 55,7% of MAL. NOM and OM were chosen as a 2nd line treatment in 27 (73%) and 10 (27%) patients respectively. The 2nd line treatment proved successful (digestive continuity) in 21 patients (56,7%).

Conclusions

Incidence of MAL after ILE is approximately 13%. Treatment of MAL is a stepwise process; endoscopic techniques have a success rate of almost 80% with EVAC representing a significant part of this treatment process.

19.

Is Gastric Cancer located in the lesser curvature a distinct entity compared to that one located in the great curvature? A single western center analysis

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Abstract

Introduction

Gastric cancer (GC) is a heterogeneous disease; the tumor distribution and molecular subtype could affect the prognosis of patients with GC. However, the clinicopathological difference between GC in the lesser and those in the greater curvature remains unknown. In this study, we aimed to investigate the different pattern and to provide new clues for a target therapy .

Materials and Methods

Between January 2003 to December 2019, 121 consecutive patients with GC located in the lesser or greater curvature were surgically treated with curative intent in our surgery department. Data related to demographic characteristics, pathological features, tumor grade, tumor size, TNM stage, tumor markers, surgical characteristics, post-operative complications and finally survival outcomes were retrospectively analyzed using a univariate analysis and the Kaplan–Meier method. Then we analyzed the pattern of lymph node metastases according to the different localization.

Results

Intestinal subtype GC is more incidence in the greater curvature than in the less one. No significant statistically differences were found in the 5-year overall survival and 5y disease free survival rate of patients affected by GC in the greater curvature and those waffected by GC in the lesser curvature ($P = 0.94$). Dichotomizing patients according to TNM pathological stages, patients affected by less curvature GC both in stage II and III showed a worst survival compared to those affected by greater curvature GC. (stage II 5y-OS: 80 vs 100% and stage III 5y-OS: 18,9 vs 55,5%).

Furthermore, we investigated the different pattern of lymphonodal metastases between GC in the lesser and greater curvature. GC in the greater curvature metastasized more

frequently to LN stations no. 8,10,11 whereas GC in the lesser curvature metastasized more frequently to LN stations no. 8,9,12 analyzing the median value of metastatic lymphonodes. In particular diffuse subtype tumours located in the lesser curvature showed a more frequent metastatic pattern in posterior lymphonodal stations.

Conclusions

Our study showed that GC is an heterogenous disease according to the different localization in the stomach. Thus, it could be important for a stratification of patients at high risk of post- surgical recurrences and of a poor prognosis.

In particular we demonstrated that patients affected by diffuse subtype GC located in the lesser curvature at Stage II-III need a more aggressive surgery and a stricter post-surgical follow-up.

21.

OMENECTOMY AS PART OF RADICAL SURGERY FOR GASTRIC CANCER: RESULTS OF A MULTICENTER PROSPECTIVE COHORT STUDY

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Objective: Omentectomy is routinely performed in patients with gastric cancer as part of sub(total) gastrectomy with modified D2 lymphadenectomy. However, there is little evidence for a survival benefit of omentectomy. This study investigated both the prevalence of metastases in the greater omentum and the survival prognosis for patients afflicted with such omental involvement. **Methods:** This was a multicenter prospective cohort study (OMEGA study) of consecutive patients with gastric cancer undergoing (sub)total gastrectomy with complete en bloc omentectomy and modified D2 lymphadenectomy. After resection, the omentum was separated from the gastrectomy specimen distal to the gastroepiploic vessels and sent separately for pathological examination. The main endpoints were the presence of metastases in the greater omentum and the 5-year overall survival of patients with omental metastases. Pathological factors associated with locoregional recurrence and/or metastases were tested with multivariable regression analysis. **Results:** Of 100 included patients, five had metastases in the greater omentum. All five patients had advanced tumors and microscopically non radical resection (R1). Metastases in the greater omentum correlated significantly with a microscopically non-radical resection, tumour expansion in the oesophagus or duodenum, linitis plastica or a proximal gastric tumour with diameter of at least 5 cm, stage III-IV disease and (y)pM1 category. Five-year overall survival was 0.0% in patients with omental metastases and 44.2% in patients without omental metastases ($p=0.001$). Median overall survival was seven months in patients with omental metastases and 53 months in patients without omental metastases. **Conclusion:** The incidence of metastases in the greater omentum is low, and when present, it is associated with advanced and unresectable disease with impaired overall survival. Omentectomy as part of radical gastrectomy for gastric cancer may not contribute to survival benefit in cases of undetected omental metastases and may therefore be omitted. Our forthcoming randomized controlled trial aims to investigate the non-inferiority of omentum preservation as compared to omentectomy in terms of 3-year overall survival.

23.

TITLE:

RESECTION MARGINS IN GASTRIC CANCER: RISK FACTOR ANALYSIS FOR RECURRENCE AND SURVIVAL

Objectives: The association between resection margin status, resection margin distance and tumour recurrence and survival have been a matter of debate over the years. The aim of this study was to determine the association between margin status and RM distance to the tumour and margin status and recurrence, disease free survival (DFS) and overall survival (OS).

Materials and methods: Retrospective cohort study of patients with histologically proven gastric or esophagogastric junction cancer, who underwent surgery with curative intent in a period of 5 years, in a tertiary center, with a minimum follow up of 5 years.

Results: Ninety-six patients were included. 5% had R1 status: one with proximal positive margin, one with lymphatic invasion on the distal margin and three with distal margin invasion. No association was found between positive distal margin and distal margin distance ($p=0,520$). Recurrence rate was 34%, mainly presenting as peritoneal or locoregional disease. After using Cox Regression, tumour location, R1 status and perineural infiltration were associated with recurrence.

Overall survival rate at 1- and 5-year were 80.1% and 54.2%, respectively. Increasing age ($p=0.005$; HR: 1,044 (95% CI: 1.01-1.08), positive margins ($p=0.048$; HR: 2.92 (95% CI: 1.01 – 8.44)) and recurrence ($p=<0001$; HR: 6,02 (95% CI: 2,87 – 12,6)) were associated with mortality.

The 1- and 5-year recurrence free survival rate were 70.8% and 51.0%, respectively. Increasing age ($p=0.018$; HR: 1.032 (95% CI: 1.01-1.06)), positive margins ($p=0.011$; HR: 3.76 (95% CI: 1.36 – 10.41)) and advance stage (III-IV) ($p=0.007$; HR: 2.35 (95% CI: 1,26 – 4,35)) were associated with event occurrence.

Discussion and conclusion: R0 resection is an important prognostic factor and should be achieved, although predicting this based only on the macroscopic resection margin distance seems difficult.

Author's

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24.

A PRAGMATIC APPROACH TO STAGE IV GASTRIC CANCER: RESULTS FROM THE PROSPECTIVE REGISTRY META-GASTRO AND A COMPARISON WITH GIRCG'S RETROSPECTIVE SERIES

Silvia Ministrini, Maria Bencivenga, Federica Filippini, Gianni Mura, Maria Antonietta Mazzei, Fausto Rosa, Mattia Berselli, Paolo Morgagni, Leonardo Solaini, Carlo Milandri, Manlio Monti, Stefano De Pascale, Daniele Marrelli, Stefania Piccioni, Luigina Graziosi, Rossella Reddavid, Claudio Belluco, Guido Alberto Massimo Tiberio

Objectives: The GIRCG (Italian Research Group for Gastric Cancer) developed a prospective database about stage IV gastric cancer to better evaluate the approach to this disease.

Methods: We collected data about 430 gastric cancer patients who resulted metastatic at diagnosis. We evaluated the characteristics of the gastric tumor and the metastases, the staging and the treatment. Moreover, we performed a survival analysis. These results were also compared to those reported in our retrospective study on stage IV gastric cancer.

Results: Four-hundred and thirty patients were enrolled from September 2018 to April 2023. A single metastatic site was found in 285 patients (66.3%) while 145 patients (33.7%) had multiple sites. In the retrospective cohort we found 75 patients (26.6%) with multiple localizations. There were more laparoscopic explorations and diagnostic cytology in the prospective cohort (34% vs 16%). In the registry 86.7% of patients received chemotherapy, with or without surgery, while in the retrospective study there were more patients submitted to surgery without preoperative chemotherapy. In the Meta-Gastro we noted a higher percentage of patients who obtained curative surgery (56.7% vs 41,5%). The univariate analyses showed better prognoses for patients with positive cytology compared to macroscopic peritoneal involvement ($p=0.008$), with 1 or 2 hepatic metastases ($p<0.001$), single metastatic site ($p<0.001$), category 1-3 according to Yoshida compared to category 4 ($p<0.001$), patients submitted to surgery compared to chemotherapy alone or best supportive treatment ($p<0.001$) and patients who received surgery with curative intent ($p<0.001$).

Conclusions: our prospective series show a more pragmatic approach to metastatic gastric cancer patients. The multidisciplinary discussion of cases and the presence of a team of dedicated radiologists are fundamental to plan an adequate therapeutic strategy, avoiding the risks of over- or under-treatment.

25.

OLIGOMETASTATIC GASTRIC CANCER. THE ANATOMIC DEFINITION BY THE META-GASTRO PROSPECTIVE OBSERVATIONAL REGISTER OF THE ITALIAN RESEARCH GROUP ON GASTRIC CANCER (GIRCG). FOCUS ON P AND H

Silvia Ministrini, Maria Bencivenga, Federica Filippini, Gianni Mura, Maria Antonietta Mazzei, Giulio Bagnacci, Fausto Rosa, Mattia Berselli, Paolo Morgagni, Leonardo Solaini, Carlo Milandri, Manlio Monti, Stefano De Pascale, Daniele Marrelli, Stefania Piccioni, Luigina Graziosi, Rossella Reddavid, Claudio Belluco, Guido Alberto Massimo Tiberio

Objectives: to contribute to the definition of oligometastatic gastric cancer.

Methods: extraction of data from the Italian prospective observational register named Meta-Gastro.

Among 454 metastatic gastric cancer patients enrolled from September 2018 and April 2023, we verified the prognostic impact of the different metastatic sites and of the different biologic categories proposed by Yoshida et al. Subsequently, we investigated the metastatic bulk considering the different metastatic sites, expressed as number of metastases (liver) and location according to the Japanese P classification (peritoneum).

Results: a single metastatic site was observed at diagnosis in 298 patients: peritoneal in 143, hepatic in 74, lymph-nodal (station>12) in 75 and hematogenous beyond the hepatic filter in 6. Median OS of patients presenting lymphatic, hepatic and peritoneal metastases was 22.8, 14.9 and 16.7 months, respectively ($p=n.s.$). The 156 patients presenting multiple metastatic sites had a median OS of 10.5 months, shorter if compared to the single site counterparts ($p<0.001$). Fifty-three, 153, and 124 patients were enrolled in Yoshida category 1, 2 and 3, respectively; their median OS was 22.8, 15.5 and 15.2 months, respectively ($p=n.s.$). The 124 patients enrolled in category 4 had the shortest survival: 8.0 months ($p<0.001$). Peritoneal metastases were detected in 250 patients; in 143 it was the sole metastatic site. Positive cytology was associated to a longer median OS: 21.6 months ($p=0.004$). Hepatic metastases were detected in 164 patients; in 74 it was the sole metastatic site. Median survival of patients affected by 1-2, 3-5 and scattered metastases was 28.1 10.9 and 10.5 months ($p<0.001$), respectively.

Conclusion: our real-life data confirm that the recognition of the “oligometastatic gastric cancer” patients may offer unexpected survival possibilities, particularly in cases of patients with single metastatic site, positive cytology alone or 1-2 hepatic metastases.

26.

THE IMPACT OF AGE ON POSTOPERATIVE OUTCOMES OF PATIENTS UNDERGOING TOTAL GASTRECTOMY FOR GASTRIC CANCER

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Objectives

With the aging of population, more elderly patients with clinically important comorbidities are being referred for gastric resection. Increasing number of patients with comorbidities causes concern about the impact of age-independent variables on surgical outcomes. This study aims to evaluate the role of age on postoperative outcomes of patients with gastric cancer undergoing total D2 gastrectomy.

Methods

In this retrospective study, we included patients with locally advanced gastric cancer receiving radical surgery between January 2012 and January 2023 at our Center. Inclusion criteria were locally advanced adenocarcinoma of the stomach or the cardia (Siewert type II and III) without distant metastases, submitted either to preoperative (or perioperative) chemotherapy and D2 total gastrectomy or to upfront surgery. Patients were divided in two groups according to their age: patients <75 and ≥75 years old. The two groups were compared according to their demographics, tumor characteristics and postoperative outcomes.

Results

A total of 107 patients were included: 36 patients (33.6%) were ≥75 years old. Elderly patients presented with higher ECOG, Karnofsky, ASA and Charlson Comorbidity Index ($p=0.002$, 0.013 , 0.001 and 0.001) and higher rates of cardiological comorbidities ($p=0.03$). Clinical tumor stage was similar between the two groups. Elderly patients were more unlikely to receive preoperative or perioperative treatments ($p=0.001$). The surgical approach, the duration of surgery and the need of blood transfusions were similar between the two groups. Elderly patients required more often a postoperative ICU observation ($p<0.001$). The postoperative morbidity rate and length of stay was similar; however, elderly patients experienced more severe complications and a higher rate of postoperative 90-day mortality ($p=0.03$ and 0.044 , respectively).

Conclusions

Total D2 gastrectomy seems a technically feasible approach for elderly patients. However, considering the significantly higher rate of postoperative mortality, a careful patient selection and preoperative evaluation is recommended prior to surgery.

27.

DOES NEOADJUVANT THERAPY INFLUENCE POSTOPERATIVE OUTCOMES OF PATIENTS UNDERGOING TOTAL D2 GASTRECTOMY FOR GASTRIC CANCER?

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Objectives

Gastric cancer represents a major global health concern, with over 1 million cases diagnosed worldwide each year. Over the years, a multimodal approach involving the combination of preoperative chemotherapy with postoperative adjuvant therapy has been progressively adopted, with the purpose of reducing the lesion size before surgery. This study aims to investigate the influence of preoperative treatments on surgical outcomes of patients undergoing total D2 gastrectomy for gastric cancer.

Methods

We included patients with locally advanced gastric cancer receiving radical surgery between January 2012 and January 2023 at our Center. Inclusion criteria were locally advanced adenocarcinoma of the stomach or the cardia (Siewert type II and III), submitted either to preoperative (or perioperative) treatment and D2 total gastrectomy (NAT group) or to upfront surgery (SURG group). Patients were divided in two groups according to the therapeutic approach they received, and the two groups were compared according to their demographics, tumor characteristics and postoperative outcomes.

Results

A total of 107 patients were included: 35 (32.7%) received NAT. Patients in the NAT group were significantly younger ($p=0.007$) and presented with more advanced diseases ($p<0.001$). Preoperative comorbidities, ASA score and performance status were similar. The surgical approach and duration of surgery did not differ between the two groups. The NAT group had more advanced pathological stages ($p=0.027$) and a higher rate of R0 resections ($p=0.05$). They experienced higher rates of intraoperative blood loss ($p=0.036$) and required a higher number of blood transfusions ($p=0.004$). Postoperative morbidity rate and severity of complications, ICU stay, length of hospital stay and postoperative mortality rates were similar.

Conclusions

In this study, patients undergoing neoadjuvant treatments experienced similar surgical results of patients receiving upfront surgery. Neoadjuvant treatments do not seem to significantly affect the postoperative outcomes of patients receiving total D2 gastrectomy for gastric cancer.

45.

AGE-DEPENDENT BENEFIT OF NEOADJUVANT TREATMENT IN ADENOCARCINOMA OF THE ESOPHAGUS AND GASTROESOPHAGEAL JUNCTION: A MULTICENTER RETROSPECTIVE OBSERVATIONAL STUDY OF YOUNG VERSUS OLD PATIENTS

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Objectives: Neoadjuvant treatment is the standard of care for locally advanced and node-positive esophagogastric-junction adenocarcinoma (EAC). However, the effect of age on oncological outcomes is disputable as they are underrepresented in treatment defining randomized controlled trials. The objective was to provide evidence for age-dependent use of neoadjuvant treatment by clinical comparisons of young (lower quartile, <56.6 years) versus old (upper quartile, >71.3 years) EAC patients.

Methods: Patients with EAC undergoing esophagectomy between 2001 and 2022 in three centers were retrospectively analyzed. Patients with distant metastases or clinical UICC stage I were excluded. Cox proportional hazards regression was used to identify the variables associated with survival benefit.

Results: Neoadjuvant treatment was administered to 185/248 (74.2%) young and 151/248 (60.9%) elderly patients ($p=0.001$). Young age was associated with a significant overall survival (OS) benefit (median OS: 85.6 vs. 29.9 months, hazard ratio 0.62, 95% CI: 0.42–0.92) after neoadjuvant treatment versus surgery alone. In contrast, elderly patients only experienced a survival benefit equaling the length of neoadjuvant treatment itself (median OS: neoadjuvant 32.8 vs. surgery alone 29.3 months, hazard ratio 0.89, 95% CI: 0.63–1.27). Despite the clear difference in median OS benefit, histopathological regression (Mandard-TRG-1/2) was similar (young 30.7 vs. old 36.4%, $p=0.286$). More elderly patients had a dose reduction or termination of neoadjuvant treatment (12.4 vs. 40.4%, $p<0.001$).

Conclusion: Old patients benefit less from neoadjuvant treatment compared to younger patients in terms of gain in OS. Since they also experience more side effects requiring dose reduction, upfront surgery should be considered as the primary treatment option in elderly patients.

28.

Authors: Cláudia Neves Marques, MD (Congress Participant); Patricia Lages, MD; Paulo Matos Costa, MD PhD

OCCULT TUMOR CELLS IN GASTRIC ADENOCARCINOMA LYMPH NODES – A SYSTEMATIC REVIEW OF REAL WORLD IDENTIFICATION TECHNIQUE

Objectives: Lymph node (LN) metastasis are crucial in gastric adenocarcinoma prognosis. Occult tumor cells (OTC) may play a role in patients without LN metastasis (N0) that recur. Primary aim of this study: Review literature on OTC detection techniques in gastric adenocarcinoma, including markers and methodology. Secondary aim: Determine OTC prevalence, including micrometastases (MM) and isolated tumor cells (ITCs), in gastric adenocarcinoma patients.

Methods: A systematic review of English studies published until August 2023 addressing OTC prevalence was conducted, retrieving studies from MEDLINE, EMBASE, and Google Scholar databases.

Results: The review included 59 observational and case report studies. Immunohistochemical examination (IHC) and polymerase chain reaction (PCR) were the most common OTC detection methods. IHC-detected OTC prevalence in lymph nodes varied widely (0.4-42%), while PCR-detected prevalence ranged from 3 to 33% in LNs. RT-PCR was reported as more sensitive than IHC for detecting lymph node micrometastases in gastric cancer, with cost, technical expertise, and equipment availability as limiting factors. The primary markers for IHC detection of OTCs in gastric adenocarcinoma lymph nodes were Cytokeratin 19 (CK19), Carcinoembryonic antigen (CEA), and Pan-cytokeratin (AE1/AE3), with the latter being the most frequent (>84% of reviewed literature). OTCs (MM and ITCs) were statistically higher in patients with pT \geq 2, higher tumor grade, diffuse type, age (>65 years), and lymphatic and venous invasion.

Conclusion: OTC prevalence in gastric cancer patients depends on the definition, methods, and setting. IHC with sequential sections implementation is an effortless strategy to overcome false negatives in nodal staging. Further research is needed to understand OTCs' impact on gastric cancer patients' lymph nodes.

29.

Authors: Cláudia Neves Marques, MD (Congress Participant) on behalf of TUGSS Multinational Studies Group (<https://www.tugssglobal.com/multinational>)

THE HOLD STUDY _STOMACH CANCER ELECTIVE SURGERY MORBIDITY AND MORTALITY AT 90-DAY: A TUGS MULTINATIONAL AUDIT

Objectives: Primary End Point: 90-day Mortality and Morbidity in patients undergoing elective surgery for gastric cancer. Secondary End Point: Determine factors associated with 90-day morbidity and mortality in patients undergoing elective surgery for gastric cancer.

Methods: Worldwide audit regarding consecutive adult patients with primary gastric malignancy (including Siewert III) undergoing Elective Surgery with curative intent (either total or partial gastrectomy) via open, laparoscopic or robotic approach between 1st April 2022 and 30th September 2022. Morbidity was classified based on GASTRODATA International standardised system and categorized using Clavien-Dindo Classification.

Results: 1112 patients were included, from 136 institutions all over the world. The median age of the cohort was 57years, 64,2% male. 86,7% of the patients lost over 10kg in the last 6 months. Neoadjuvant therapy was delivered to 32% (chemotherapy) and 7%(radiation) of patients. Lymphadenectomy D2+ and jejunostomy were performed in 15,4% and 3,8%, respectively. Median length of stay was 8 days. Almost half the patients (47,6%) had at least one complication in the 90 days, 17,1% of these classified as Clavien–Dindo grade 3/4. The most frequent (15,2%) complication was respiratory (i.e. Pneumonia), being the oesophageal anastomotic leak the most common surgical complication (4,8%). The 90-day mortality rates were 3.4%. Readmission was 18,3%. Regarding factors associated with morbidity and mortality, patients with preoperative comorbidities, who received blood transfusion during or after surgery and advanced tumor stage (pT3/pT4 and pN+) had a significantly higher rate of postoperative complications and mortality ($p<0.05$).

Conclusions: There is an unmet need for understanding variations in global 90-day outcomes of surgery for gastric cancer to facilitate quality improvement projects at local level. This study outlines 90-day post-operative outcomes after gastrectomy with curative intent worldwide, namely the relevance of high volume centres and detailing critical data to allow implementation future quality improvement initiatives.

30.

MODIFIED ENDOSCOPIC VACUUM THERAPY FOR TREATMENT OF ESOPHAGOGASTRIC ANASTOMOTIC LEAK FOLLOWING IVOR-LEWIS ESOPHAGECTOMY – A CASE REPORT

Nunes, M¹, Pereira J², Rama, T¹, Antunes, P², Baldaque-Silva F²

Objectives: Ivor-Lewis esophagectomy is the mainstay of treatment of distal esophageal cancer, despite being associated with high morbidity and mortality rates. Anastomotic leak following this procedure is a potentially fatal complication with a challenging approach. The aim of this case report is to showcase the excellent results of modified endoscopic vacuum therapy (MEVT) in this scenario.

Methods: A 61-year-old male with distal esophageal adenocarcinoma was submitted to minimally invasive Ivor-Lewis esophagectomy following preoperative chemotherapy. On the 4th postoperative day, anastomotic leak with associated mediastinitis and right purulent pleural effusion was identified. Initial approach comprised antibiotic therapy, total parenteral nutrition and endoscopic stenting, followed by CT-guided percutaneous drainage. Due to persistence of organized empyema, thoracoscopic surgical debridement with drain replacement was performed on the 20th postoperative day. Endoscopic revision and covered stent replacement on the 36th postoperative day showed persistence of the anastomotic defect. Closure with an 11mm over-the-scope-clip was attempted but later deemed ineffective. Thus, MEVT was started on the 57th postoperative day, by means of a double lumen nasojejunal feeding and gastric aspiration tube, covering the esophagogastric fistula and connected to a modified vacuum system.

Results: MEVT successfully achieved progressive fistula closure over two weeks while maintaining enteral feeding. Following endoscopic and radiologic confirmation of resolution, oral feeding was resumed and all thoracic drains were removed, with no further complications. Patient was discharged 76 days after the initial surgery with complete functional recovery on follow-up consultations. Pathological specimen confirmed an R0 resection – ypT2N0 (8th AJCC).

Conclusions: MEVT with enteral nutrition seems to be an excellent minimally invasive endoscopic treatment choice for managing difficult anastomotic leaks following esophagectomy - even after previous failed attempts using other methods.

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31.

A randomized, multicenter clinical trial comparing the combination of perioperative chemotherapy and preoperative laparoscopic Hyperthermic Intraperitoneal cheMothERApY plus gastrectomy to perioperative chemotherapy and gastrectomy alone in patients with advanced gastric cancer at high risk of peritoneal recurrence (Gastric CHIMERA trial) – feasibility study

Authors: Radoslaw Pach¹, Marek Sierzega¹, Piotr Kołodziejczyk¹, Antoni Szczepanik², Wojciech Polkowski³, Wojciech Zegarski⁴, Marek Bebenek⁵, Daromir Godula¹, Piotr Gwizdak¹, Piotr Richter¹

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Background

Peritoneal metastases are often found in patients treated for gastric cancer and are considered one of the most important factors affecting the prognosis. After gastrectomy, peritoneal metastases are found in 10-46% of patients despite the fact that treatment modalities such as adjuvant systemic radiochemotherapy and perioperative chemotherapy have improved overall survival and disease-free survival rates. In few studies, the role of adjuvant hyperthermic intraperitoneal chemotherapy (HIPEC) has been evaluated in advanced gastric cancer as a prophylaxis of peritoneal metastases. In a meta-analysis published in 2023 gastrectomy (without perioperative chemotherapy) versus gastrectomy+HIPEC were compared. Better overall survival (RR 0.72) and progression-free survival (RR 0.57) were reported. Therefore, the adjunct HIPEC to the current standard treatment regimen can potentially have an additive or synergistic effect. The present study aims to evaluate the efficacy of perioperative FLOT chemotherapy in combination with laparoscopic

preoperative hyperthermic intraperitoneal chemotherapy (LHIPEC) in patients with advanced gastric cancer at high risk of peritoneal metastases.

Methods

In this phase III multicenter randomised controlled trial, 600 patients will be randomly assigned to two groups during exploratory laparoscopy performed after 4 cycles of preoperative FLOT chemotherapy. The experimental arm will receive preoperative laparoscopic hyperthermic intraperitoneal chemotherapy (LHIPEC) with irinotecan followed by gastrectomy (surgery will take place 2-4 weeks following LHIPEC). The control arm will receive standard treatment (gastrectomy). All patients, regardless of allocation, will additionally receive 4 cycles of FLOT chemotherapy before surgery and 4 cycles of FLOT chemotherapy after gastrectomy. The end points for the study are: peritoneal recurrence rate, recurrence rate, overall survival, disease-free survival, postoperative complication rate, quality of life. Between 2022 and 2023 a total of 25 patients were recruited. Twelve patients were randomised and seven received laparoscopic HIPEC. LHIPEC did not increase the rate of postoperative complications after gastrectomy and during adjuvant chemotherapy.

Conclusions

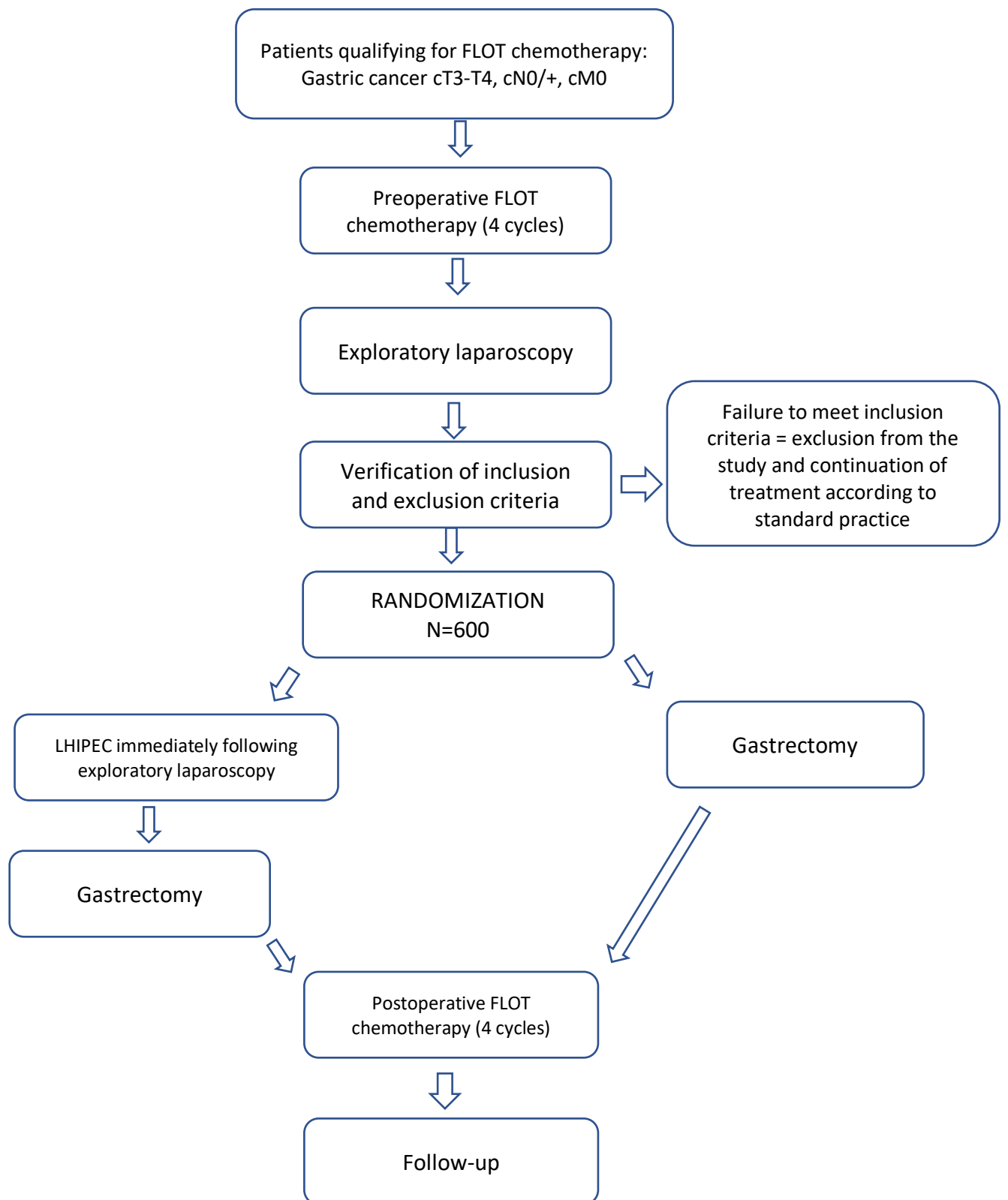
The present study is the first prospective multicenter randomised trial that investigates the influence of neoadjuvant HIPEC with irinotecan as an adjunct to perioperative FLOT chemotherapy in advanced gastric cancer. After the recruitment of the first patients and their treatment according to the protocol, the feasibility of the trial was confirmed. The results may contribute to improving treatment options in gastric cancer at high risk of peritoneal metastases.

Trial registration

ClinicalTrials.gov, NCT04597294 identifier. Registered prospectively on October 15, 2020.

EudraCT (European Union Drug Regulating Authorities Clinical Trials Database) number: 2020-001419-25.

Keywords: advanced gastric cancer; hyperthermic intraperitoneal chemotherapy; recurrence; laparoscopy



32.

PROGNOSTIC EFFECTS OF THE EXTENSION OF RESECTION AFTER POSITIVE INTRAOPERATIVE PATHOLOGY DURING ONCOLOGIC RESECTION OF GASTRIC OR ESOPHAGOGASTRIC JUNCTION ADENOCARCINOMA

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Objectives:

Residual tumor at the resection margins after oncologic surgery for adenocarcinoma of the stomach and gastroesophageal junction (GEJ) is a known prognostic factor. In this retrospective cohort study at a tertiary referral center, we aimed to investigate the importance of intraoperative pathologic consultation (IOC) and consecutive surgical extension on patient survival.

Methods:

A total of 679 cases with curative intent were included from 737 consecutive patients who underwent (sub)total gastrectomy for gastric or GEJ adenocarcinoma between 05/1996 and 03/2019. Patients were classified into the following categories: 1) R0 without further resection (direct R0), 2) R0 after positive IOC and extension of resection (converted R0), and 3) R1.

Results:

IOC was performed in 242 (35.6%) of the patients and in 216 (89.3%) of the patients at the proximal resection margin. Direct R0 status was achieved in 598 (88.1%) patients, converted R0 in 26 (3.8%) of 38 (5.6%) patients with positive IOC, and R1 in 55 (8.1%) patients. The median follow-up of surviving patients was 29 months. The 3-year survival rate (3-YSR) was significantly higher for direct R0 than for converted R0 (62.3% versus 21.8%) (hazard ratio (HR)=0.298; 95%CI=0.186-0.477, P<0.001). The 3YSR was similar between converted R0 and R1 (21.8% vs. 13.3%; HR=0.928; 95%CI=0.526-1.636, P=0.792). On multivariate analysis, advanced T (P<0.001), N (P<0.001), R (P=0.003), and M1 (P<0.001) status were associated with worse overall survival (OS).

Conclusion:

IOC and subsequent extended resection for positive margins in gastrectomy for adenocarcinoma of the proximal stomach and gastroesophageal junction does not confer a long-term survival benefit in advanced tumor stages.

Annotation:

The submitted scientific paper was published in the International Journal of Surgery (IF: 15.4) in 2023. Furthermore, data is submitted for presentation during the upcoming DCK (annual congress of the German Society of Surgery) 2024 in Leipzig, Germany.

<https://pubmed.ncbi.nlm.nih.gov/37222663/>

GASTRIC CANCER LATE RECURRENCE: A RARE CASE REPORT

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ABSTRACT

Objectives: Gastric cancer (GC) represents a common malignancy with increasing prevalence and a high mortality rate. Complete radical surgical resection remains the treatment gold-standard. Despite advances in curative and palliative treatment, allowing survival improvement, mortality and recurrence rates remain high. Most recurrences happen in the first two years after surgery, and peritoneum is the most common site. Late recurrences, as well as bone metastases, are rare. Our intent is to report a rare case of GC late recurrence.

Methods: We present a case of a GC late recurrence with peritoneal and bone metastases, 20 years after curative surgery. Patient was diagnosed with an advanced gastric adenocarcinoma (GA) and was submitted to total gastrectomy in 2002. No adjuvant treatment was done. Disease was considered in remission and patient was followed in our institution for 12 years.

Results: In 2022, due to lower gastrointestinal bleeding, patient did a colonoscopy and a subsequent abdomino-pelvic computed tomography-scan with evidence of colonic wall thickening in the splenic flexure, bulky mesenteric mass with retraction and multiple sclerotic bone lesions. Bone biopsy and exploratory laparotomy were performed, diagnosing GC recurrence. Patient was proposed to palliative chemotherapy.

Conclusions: Understanding the timing and patterns of recurrence is essential to develop effective adjuvant treatment strategies. Certain clinicopathologic factors are associated with specific patterns, but clinically predictive models are lacking. Diffuse subtype, infiltrative growth/serosal invasion, and lymph node involvement at diagnosis favor peritoneal recurrences. Bone recurrence is more frequent at younger age, proximal tumors, advanced GC, and diffuse subtype. Few reports exist in the literature regarding late recurrences. GC is an aggressive disease with high risk for recurrence, usually associated with poor survival. Signet ring cell histology of poorly cohesive GA and advanced disease stages are both independent predictive factors of poor prognosis. Peritoneal spreading is the main cause of treatment failure and death, and bone metastases are rare. Late recurrences, especially decades after curative surgery, are exceedingly rare. Treatment options are limited, and survival is very poor.

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Authors' Contribution: All listed contributors designed the study and did the collection and assembly of data as well as data analysis and interpretation. All authors wrote the manuscript and did its final approval.

34.

The 3D reconstruction and modeling in forecasting functional results of jejunogastroplasty after total gastrectomy for acute bleeding gastric cancer.

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Aim: To determine the role of 3D reconstruction and modeling in predicting the functional outcomes of jejunogastroplasty (JGP) after total gastrectomy (GE) in acute bleeding gastric cancer (BGC).

Materials and Methods: 3D reconstruction was performed in 5 patients who underwent total GE (3 men and 2 women) with JGP in BGC. Cancer of the body of the stomach - in 3 patients, cancer of the cardia - in 2 patients. D2 lymphnode dissection was performed in all patients. In 4 patients, JGP was performed with the including duodenum. 3D CT model was printed on a spatial 3D printer.

Results and discussion: The volume of the small bowel reservoir (JGP) ranged from 350 ml to 480 ml. The passage through the small intestine was within 40-55 minutes to the level of the ileocecal angle. Postoperative CT reconstruction was performed in 3 patients, and in 2 before and after JGP surgery. With cicatrice changes in the area of the duodenum after surgical interventions (suturing of a perforated ulcer, duodenoplasty, pyloroplasty) CT modeling is performed in the JGP variants according by Roux without including duodenum. If a duodenum is intact, CT modeling is carried out in the variant of the formation of the JGP with the including duodenum. The including duodenum in JGP after total GE is characterized by better functional results in the long-term postoperative period.

Conclusions: 1. 3D reconstruction and modeling make it possible to choose the option of reconstructive intervention for JGP after total GE with or without duodenal inclusion.

2. The best functional results after total GE were obtained after JGP with the including duodenum.

35.

Brain metastasis incidence in gastro-esophageal cancer : a meta-analysis

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Background: Upper gastrointestinal cancers (UGC) are a leading cause of cancer related deaths. Brain metastases (BM) from gastric and esophageal cancer are rare and associated with a poor survival time. The precise incidence of BM for UGC is lacking.

Methods: We searched the keywords “: Gastric cancer OR Oesophageal Cancer AND Cerebral Metastasis ” in Pubmed, EMBASE, Cochrane Library. Inclusion criteria were all studies with or without an incidence rate of brain metastasis from UGC cancer patients cohort. When the inclusion criteria were met, we extracted the following endpoints for each study: year of publication, country of population, tumor localization, tumor histology, number of brain lesion, synchronous or metachronous brain metastases, stage of the primary tumor, other localization of metastases, surgical treatment of the primary tumor, different modality of brain metastasis treatment (surgery, steatotic radiosurgery, whole brain radiation, gamma knife surgery), survival and follow-up

Results: We included in the final analysis 52 studies. The total number of patients with oesophageal tumor were described in 30 studies with 41636 patients from which 1234 patients (2.9%) had a cerebral metastasis. 526 patients (63%) had an adenocarcinoma, 287 (34%) had a SCC and 17 (3%) other histology. The metastasis was unique in 288 patients (50%) and multiples in 282 patients (50%). A combined radiotherapy and surgery was performed in 129 patients (17.9%). Surgical metastasectomy was performed in 172 patients (24.25%). Stereotaxic radiotherapy was delivered in 60 patients. (8.5%) A whole brain radiotherapy was performed in 265 patients (35.9%). Gamma knife surgery was performed in 43 patients (5.9%). Chemotherapy in 10 patients (1.6%) and no treatment in 43 patients. (5.9%). The median survival was reported from 3 month to 24 months. We identified 12 articles which matched the research criteria for gastric cancer with a total of 73.781 primary gastric tumors where 645 presented brain metastasis (0.87 %). We could identify 159 patients with single brain lesion (42.3 %) compared to 217 patients with multiple brain lesion (57.7 %). We identified 434 adenocarcinoma which represent 81.1 % of the brain metastasis. The median survival for patients with brain metastasis from gastric cancer was described from 1.3 month to 27 months.

Conclusion: Brain metastases from gastroesophageal cancer are rare and associated with a low survival. Multimodal treatment is the most described treatment strategy. More studies are required to assess the role of brain imaging in the initial staging of UGI cancer

**DEFINING BENCHMARKS FOR
FUNCTION-PRESERVING ONCOLOGICAL
GASTRECTOMY
– A MULTICENTER ANALYSIS**

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Objectives

Proximal gastrectomy with double-tract reconstruction (PG DTR) is a function-preserving surgery performed for gastric cancer located in the upper third of the stomach. According to KLASS-05, a nationwide multi-institutional prospective randomized control trial held in South Korea, laparoscopic PG DTR was shown to be as safe as laparoscopic total gastrectomy while requiring less vitamin B12 supplementation. This educational video aims to provide a comprehensive and instructive resource for surgeons interested in adopting the robotic approach for PG DTR.

Methods and Results

The video was meticulously crafted by editing real-time footage of a robotic PG DTR performed in August 2023 at Seoul National University Hospital (SNUH). The detailed steps of lymphadenectomy, resection, and anastomosis are illustrated. The intracorporeal phase was recorded via the Da Vinci Xi system, while the extracorporeal phase was recorded with an Olympus overhead camera.

Conclusions

This high-quality step-by-step video tutorial on PG DTR is a valuable and comprehensive resource for surgeons who are seeking to acquire or enhance their skills in performing robotic PG DTR. At SNUH, approximately 50 PG DTRs are performed each year, among which 23% are robotic. By sharing our experience and expertise, we aim to promote the wider adoption of this surgical technique, ultimately improving patient outcomes and minimizing surgical complications. We believe that this educational tool will contribute to the dissemination of best practices and facilitate the continued development of minimally-invasive function-preserving surgery for gastric cancer.

Word count: 235

37.

**ASSESSING CLINICAL OUTCOMES OF ROBOTIC
AND LAPAROSCOPIC GASTRECTOMY USING
PROPENSITY SCORE MATCHING: A 5-YEAR STUDY
FROM A HIGH-VOLUME KOREAN GASTRIC
CANCER CENTER**

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Objectives

Robotic gastrectomy (RG) has been expected to offer multiple advantages over laparoscopic gastrectomy (LG), including lower complication rates, enhanced lymph node dissection, and earlier patient recovery. The aim of this study was to evaluate whether RG demonstrates superiority over LG regarding safety and oncological outcomes.

Methods

A retrospective cohort study was conducted at Seoul National University Hospital encompassing patients who received surgery from January 1, 2013 to December 31, 2017. Propensity score matching was applied to balance covariates, including age, sex, BMI, ASA score, abdominal surgical history, clinical stage, tumor location, tumor size, operator, year, and surgical methods, resulting in a 1:3 matched ratio. Postoperative complications, pathology results, blood tests at 2 days after surgery, and overall survival were analyzed.

Results

268 patients who underwent RG and 733 who underwent LG were matched. In the RG group, total gastrectomy (TG) was performed in 43/268 (16.0%), distal gastrectomy (DG) in 96/268 (35.8%), and pylorus preserving gastrectomy (PPG) in 124/268 (46.3%). There were no significant differences in complication rates (RG: 57/268 (21.3%) vs. LG: 157/733 (21.4%), $p=0.561$), number of retrieved lymph nodes (RG: 36.0 (28.0-46.0) vs. LG: 37.0 (29.0-47.0), $p=0.247$), and 5-year overall survival rates (RG: 94.8% vs. LG: 93.1%, HR: 0.76, 95% CI 0.41-1.40, $p=0.379$). However, CRP levels were significantly higher in the RG group (RG: 10.8 (7.1-15.1) vs. LG: 9.8 (6.4-13.6), $p=0.004$).

Conclusions

This study provided valuable insights into the comparative outcomes of RG and LG. RG resulted in higher postoperative CRP levels, most likely attributed to the specific energy devices used for gastrectomy. To optimize the potential benefits of RG, further developments in articulating robotic energy devices are warranted.

Word count: 271

38.

WESTERN VALIDATION OF KOQUSS-40 QUESTIONNAIRE ASSESSING QOL OF GASTRIC CANCER PATIENTS AFTER GASTRECTOMY

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INTRODUCTION:Some questionnaires are used to assess the quality of life(QoL) of patients after gastrectomy for gastric cancer(GC) as the EORTC QLQC30-STO22, but none assesses the post-gastrectomy syndrome symptoms. The questionnaire developed by KOREAN QQuality of life in Stomach cancer patients Study group(KOQUSS-40) was validated to fill this gap: it includes 40 questions on 11 topics. The aim of the present study is to provide a Western validation of KOQUSS-40 questionnaire.

METHODS:After translation from English to Italian and back translation, the KOQUSS-40 was first applied to 20 patients who underwent gastrectomy at Upper-GI-Surgery of Verona to check the comprehensibility and adjust for cultural adaptation. Due to the differences emerged, we modified 3 questions, and added a new question. The new version(IQUSS-41) was applied from May.2021 to April.2022 to 92 patients in 2 Italian-Centers. Criterion validity was assessed by comparing the scores of IQUSS-41 with the EORTC QLQ-C30 and QLQ-STO22. Items were developed using 4-point Likert scale and item scores were examined using mean and standard deviation.

RESULTS:Median age was 66yo, 59.8% male, 57.6% BMI>25. Most had a pT≥3(50.0%), N0(61.9%) and M0(96.7%) gastric cancer, 55.4% underwent total gastrectomy and D2-lymphadenectomy(67.4%) mainly with open technique(81.5%). 37% of patients received neoadjuvant-therapy and 44.6% adjuvant chemo. The analysis of criterion validity showed a good correlation between IQUSS-41 and the already validated EORTC questionnaires. The item analysis revealed that after the cultural adaptation, the questionnaire were more appropriate for western patients, indeed the maximum score marked was 3 or 4 for all questions of IQUSS-41. Most of the missing answers was due to error or low level education. These results revealed the need to perform further changes as simplifying the vocabulary and adding a sub-question before multicentric validation.

CONCLUSIONS:KOQUSS-40 is the only questionnaire aiming at specifically evaluating post-gastrectomy syndrome. A Western validation is urgently needed. We provided evidence on effective cultural adaptation of KOQUSS-40 by the elaboration of IQUSS-41. However, further changes are required before using IQUSS-41 for multicentric-validation on patients treated at 10 Italian-centers.

39.

Oncological characteristic of gastrointestinal stromal tumors of the stomach, the esophagus, and the gastroesophageal junction: data from the German Clinical Cancer Registry Group

Michael Thomaschewski

Objective: Gastrointestinal stromal tumors (GIST) are most frequently located in the stomach but are also found in the esophagus and the gastroesophageal junction (GEJ). Information regarding the prognostic factors associated with upper gastrointestinal GIST is still scarce.

Methods: In this study, datasets provided by the German Clinical Cancer Registry Group, including a total of 93,069 patients with malignant tumors in the upper GI tract (C15, C16) between 2000 and 2016 were analyzed to investigate clinical outcomes of GIST in the entire upper GI tract.

Results: We identified 1361 patients with GIST of the upper GI tract. Tumors were located in the esophagus in 37 (2.7%) patients, at the GEJ in 70 (5.1%) patients, and in the stomach in 1254 (91.2%) patients. The incidence of GIST increased over time, reaching 5% of all upper gastrointestinal tumors in 2015. The median age was 69 years. The incidence of GIST was similar between males and females (53% vs 47%, respectively). However, the proportion of GIST in female patients increased continuously with advancing age, ranging from 34.7% (41-50 years) to 71.4% (91-100 years). Male patients were twice as likely to develop tumors in the esophagus and GEJ compared to females (3.4% vs. 1.9% and 6.7% vs. 3.4%, respectively). The median overall survival of upper gastrointestinal GIST was 129 months. The 1-year, 5-year, and 10-year OS was 93%, 79%, and 52% respectively. Nevertheless, tumors located in the esophagus and GEJ were associated with shorter OS compared to gastric GIST (130 vs. 111 months, $p = 0.001$). The incidence of documented distant metastasis increased with more proximal location of GIST (gastric vs. GEJ vs. esophagus: 13% vs. 16% vs. 27%) at presentation.

Conclusion: GIST of the esophagus and GEJ are rare soft tissue sarcomas with increasing incidence in Germany. They are characterized by worse survival outcomes and increased risk of metastasis compared to gastric GIST.

40.

A PICTURE OF BODY MASS INDEX (BMI) IN GASTRIC CANCER TREATMENT: THE ITALIAN GROUP OF GASTRIC CANCER RESEARCH (GIRCG) EXPERIENCE.

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Objective: Obesity is a severe health problem and is considered a risk factor for surgical procedures. Some evidence of the impact of BMI on the postoperative outcomes of GC is available. Indeed, technical difficulties are higher in obese patients. Our aim is to analyse the postoperative outcomes after gastrectomy according to BMI categories in a multicentre series.

Methods: This is a national multicentre retrospective observational study, considering all patients with primary gastric cancer who underwent gastrectomy between January 1, 2010, and December 31 2020, at 7 participating GIRCG centres. The BMI was categorised according to the World Health Organization (WHO) classification.

Results: The data of 1367 patients who underwent gastrectomy were retrospectively collected. The median BMI was 24.7 (22.2–27.3) kg/m², and the distribution of BMI categories was 728 (53%) norm weight, 489 (36%) overweight and 150 (11%) obese. The percentage of patients who underwent the laparoscopic approach was similar in obese and normal weight. The rate of sub-total gastrectomy was more frequent in overweight/obese patients at 47.8%, while the norm weight was 54.3% in total gastrectomy. The median total number of removed lymph nodes in the obese patients was significantly lower (median 30, min-max: 2-126) from the norm weight (32, 0–160) (p=0.028); however, it did not appear to be influenced by the type of gastrectomy. The pathological TNM did not differ between BMI categories. The radical intent was reached by 89% of obese patients, 87% and 86% of norm weight and overweight, respectively. The proportion of postoperative complications was 39% vs. 36% vs. 36% in obese, normal and overweight, respectively. The proportion of death during the follow-up was 38% among obese patients (p=0.031).

Conclusions: Some technical issues likely affect lymphadenectomy for GC in obese patients. Technology should be used to improve surgical procedures in obese patients with GC.

41.

GASTRIC CANCER IN THE YOUNG ADULT. NEW INCIDENCE FROM EAST TO WEST?

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Objective: The incidence of gastric cancer (GC) has declined in the past five decades, while an increasing trend has been reported in GC young adult patients (GCYA, ≤ 45 years). We aimed to study the prevalence of GCYA as a function of country, histology, treatment, and survival and compared it to gastric cancer in adults (GCA).

Methods: We designed an observational, multicentric international retrospective study considering consecutively operated patients for GC from January 1, 2010, to December 31, 2020, in three centres located in Europe (Italy), South America (Brazil), and Asia (Japan). Over ten years, 1657 patients were collected. Among them, 156 patients were GCYA and 1501 GCA.

Results: Most GCA patients were male (67%), while in GCYA, 56% were female. The median age of GCA was 68 years (IQR=59-75) and 39 years (35-42) in the GCYA patients. An increase in GC diagnoses has been observed in the young adult group of patients, peaking around 40 years old.

The clinical tumor stage in GCYA was lower in Japan than in Italy, while TNM did not significantly differ among the three centres at pathological examination.

Differences in histological classification emerged between the three centres in GCYA patients. The predominant histotype in the Italian and Brazilian centres was diffuse, while the mixed histotype was the most prevalent in Japan.

The main extension of lymphadenectomy was D2 in all centres. The Overall survival (OS) in the GCYA group did not differ between the Western centres; in contrast, OS was significantly higher in Japan, with a five-year survival of 86.7% (CI 95%: 0.74-0.93) ($p=0.034$).

Conclusions: Over the past ten years, new diagnoses peaked at ages less than 50. This new trend can be found in countries with different ethnicities and risk factors for Gastric Cancer development. Screening programs focused on young people should be planned.

42.

DISCONTINUATION OF NEOADJUVANT THERAPY IS NOT ASSOCIATED WITH WORSE POSTOPERATIVE SHORT-TERM OUTCOMES IN ELDERLY PATIENTS (≥ 70 YEARS) WITH RESECTABLE GASTRIC CANCER

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Abstract:

Objectives: In clinical practice, older gastric cancer patients are less likely to be treated with neoadjuvant therapy, but there is still a lack of evidence to clarify the rationality. Therefore, this study aims to use the national database to describe the relationship between age and the risk of not initiating neoadjuvant therapy of gastric cancer patients in Dutch clinical practice, and to clarify the impact of discontinuation of neoadjuvant therapy in elderly gastric cancer patients.

Methods:

Gastric cancer patients treated with curative gastrectomy between 2011 and 2021 in the Netherlands from the Dutch upper GI cancer audit (DUCA) database were included in this study. The association of age with the risk of not initiating neoadjuvant therapy was assessed with restricted cubic splines. In elderly patients (≥ 70 years), short-term postoperative outcomes and pathological results were compared between patients who completed and discontinued neoadjuvant therapy using multivariable logistic regression.

Results:

A total of 3049 patients were included. The risk of not initiating neoadjuvant therapy due to advanced age in gastric cancer patients increased after the age of 70. In the patients older than 70 years, there were no statistically significant differences in 30-day mortality, overall complications, anastomotic leakage, re-intervention, and pathologic complete response between patients who completed and discontinued neoadjuvant therapy. However, discontinuation was associated with a higher risk of R1/2 resections (OR: 2.915; 95%CI: 1.560-5.450; p-value: <0.001), higher ypT stage (OR:1.835; 95%CI: 1.214-2.774; p-value: 0.004), and higher ypN stage (OR:1.695; 95%CI: 1.146-2.506; p-value: 0.008).

Conclusion:

In Dutch clinical practice, the risk of not initiating neoadjuvant therapy in gastric cancer patients independently due to old age increases from the age of 70. Discontinuation of neoadjuvant therapy may not lead to or be associated with worse short-term postoperative outcomes in elderly patients (≥ 70 years) with resectable gastric cancer.

43.

THE ABDOMINAL DRAIN IN GASTRECTOMY TRIAL: A MULTICENTER NON-INFERIORITY RANDOMIZED TRIAL ON THE USE OF PROPHYLACTIC DRAIN AFTER GASTRECTOMY

Objective: The use of abdominal drainage in gastrectomy has been questioned over the past decade, with no convincing evidence to support this practice. Nevertheless, the evidence primarily derived from low-quality studies, and many surgeons remain convinced that prophylactic drains could help prevent postoperative invasive procedures.

Methods: The ADiGe Trial was a multicenter randomized non-inferiority study. Its primary objective was to investigate whether omitting routine drainage was linked to an increase in postoperative complications. Patients scheduled for gastrectomy were allocated into two groups: the drain group (Group A) and the no drain group (Group B). The primary analysis employed a modified intention-to-treat approach (mITT), considering reoperation or percutaneous drainage within 30 days post-surgery. Secondary analyses were also performed on the as-treated (AT) and per-protocol (PP) populations. Secondary endpoints included overall morbi-mortality, the incidence of anastomotic and duodenal leaks, length of stay, and readmission rate. The calculated sample size was 404 patients.

Results: Between 2019 to 2023, 11 Centers belonging to the Italian Research Group for Gastric Cancer, included 390 patients in the final analysis, 196 in Group A and 194 in Group B. The two groups were comparable regarding baseline features.

In mITT analysis, 7.14% patients in Group A required reoperation and/or percutaneous drainage, compared to 14.43% patients in Group B. This resulted in a 7.3% difference (90%CI: 2.2-12.5, $p=0.018$) in favor of Group A, thus supporting the null hypothesis of inferiority for Group B.

Both the secondary analyses confirmed this result.

44.

AN IMAGE-BASED AI ALGORITHM FOR QUICKLY AND RELIABLE EVALUATING CELLULAR SENESCENCE OF GASTRIC ORGANOID

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Objectives: Organoid is a powerful tool and has a broad application prospect in biomedicine. Especially it can be used as alternatives of animal models to test potential drugs before clinical trials. However, it remains unclear how many passages of organoids keep cellular vitality *ex vivo*.

Methods: Herein, we constructed 55 gastric organoids from 35 individuals, and serially passaged and captured microscopic images for phenotypic evaluation. Senescence-associated β -galactosidase (SA- β -Gal), cell diameter in suspension, and gene expression levels of cell cycle regulation were examined. The YOLOv3 object detection algorithm integrated with convolutional block attention module (CBAM) was used for adjuvant evaluation of organoid vitality.

Results: As a result, SA- β -Gal staining intensity, single-cell diameter, and expression of *p15*, *p16*, *p21*, *CCNA2*, *CCNE2*, and *LMNB1* reflected aging progression of organoids along with passaging. The CBAM-YOLOv3 algorithm precisely evaluated aging organoids based on organoid average diameter, organoid number, and number \times diameter (No. \times Dia.) parameters, which was positively correlated with SA- β -Gal staining and single-cell diameter. Organoids derived from normal gastric mucosa showed limited passaging from passage one to passage five, and then to aging, while tumor organoids revealed unlimited passaging potential with the longest expanding time over 45 passages (511 days) without obvious senescence.

Conclusions: Considering the lack of evaluation indicators for organoid growth status, we established a reliable evaluating approach for organoids vitality integrated phenotypic parameters with artificial intelligence algorithm. It is important for precision evaluation of organoids status in biomedical study and living biobank monitoring.

KEYWORDS: Gastric cancer; organoids; cellular senescence; artificial intelligence

Postoperative morbidity was 23%, and it was evenly distributed. The incidence of anastomotic leaks was 4%, while duodenal leaks were diagnosed in 2% of the patients.

Conclusion: The results of the ADiGe Trial call into question the use of prophylactic drainage after gastrectomy, as this practice appears to reduce the need for additional percutaneous drainage or reoperation by 7.4%.

VIDEOS

Table of Contents

1	SENORITA TRIAL FOR EARLY GASTRIC CANCER IN A WESTERN CENTER. AN INITIAL EXPERIENCE	I. Benzoni
2	INDOCYANINE GREEN GUIDED LYMPHADENECTOMY IN ONCOLOGIC GASTIC SURGERY	I. Benzoni
3	ROBOTIC SUBTOTAL GASTRECTOMY WITH D2 LYMPHNODEDISSECTION: VIDEO	M. Jung
4	DOUBLE-TRACT RECONSTRUCTION AFTER PROXIMAL GASTRECTOMY	A. Kersik
5	LAPAROSCOPIC SUBTOTAL GASTRECTOMY WITH ROUX-EN-Y-RECONSTRUCTION IN A CIRRHOTIC PORTAL HYPERTENSION PATIENT	I. Mesquita
6	MODIFIED ENDOSCOPIC VACUUM THERAPY: COULD IT BE A GAME-CHANGER IN THE MANAGEMENT FOR UPPER GASTROINTESTINAL LEAKS ?	J.P. Pereira
7	MINIMALLY INVASIVE PYLORUS-PRESERVING GASTRECTOMY – A STEP BY STEP VIDEO GUIDE	M. Schneider
8	EDUCATIONAL VIDEO OF ROBOTIC PROXIMAL GASTRECTOMY WITH DOUBLE-TRACT RECONSTRUCTION	J.S. Kim

1.

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Video Presentation

SENORITA TRIAL FOR EARLY GASTRIC CANCER IN A WESTERN CENTER. AN INITIAL EXPERIENCE

INTRODUCTION: the aim of our monocentric observational study is to evaluate the feasibility of laparoscopic sentinel node navigation surgery with indocyanin green (ICG), applying SENORITA protocol in a Western center, in patients with early gastric cancer. Sentinel node navigation surgery reduces the extent of gastric and lymph node dissection and may improve quality of life. The SENORITA (a Korean well established protocol), aims to evaluate the feasibility of organ sparing gastric surgery with ICG lymph node navigation compared to standard laparoscopic gastrectomy for early gastric cancer. **METHODS:** We conducted an uncontrolled single-centre, prospective analysis, with the aim of evaluating surgical radicality and post- partial gastrectomy quality of life. We analyzed 6 patients operated from February to December 2022 at ASST Cremona with adenocarcinoma clinical staging cT1N0M0. All patients underwent preoperative staging with EGDS, CT and EUS. The first endpoint was the feasibility of the intervention related to the postoperative quality of life. Secondary outcomes consisted of the radicality of the intervention on the T and N parameters, duration of the surgery, post-operative complications, hospitalization times, hospital readmission, the need for other procedures and oncological follow-up. **RESULTS:** 6 patients were included in the analysis. Tumors were localized in 2 cases in antral region, in 2 cases in the fundus and in two cases in the body of the stomach. Only one patient developed surgical complications due to edema of the suture-line and consequent pyloric occlusion. The other patients-course was uneventful. The histological examination confirmed the clinical staging in all, with the exception of one patient in whom the tumor resulted as pT3N1 and addressed to oncologist, after refusal of completion-gastrectomy. **CONCLUSIONS:** In selected cases of early gastric cancer, gastric wedge resection associated to sentinel-nodes basin removal, is a feasible and safe option and it could achieve a safe oncological result, without functional sequelae.

2.

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Video Presentation

INDOCYANINE GREEN GUIDED LYMPHADENECTOMY IN ONCOLOGIC GASTRIC SURGERY

Objectives Due to its relatively low cost and high availability, Indocyanine green (ICG) is the most employed fluorophore in general surgery. ICG fluorescence guided nodal mapping is an effective tool that can help surgeons to perform a good quality lymphadenectomy, besides the usefulness in tumor location.

Methods – In this video we present the case of a 61 years old female (ASA 2, BMI 22,5) that underwent laparoscopic subtotal gastrectomy for cT1N0 gastric adenocarcinoma signet ring cell of the gastric body. Sixteen hours before surgery the patient underwent endoscopy with ICG (1 ml, 0.125 mg/ml) injection in the submucosa proximal to the lesion. We used a standard 5 port technique; the nodal basin of the tumor was promptly showed with ICG fluorescent staining in stations 1,3, 4sb and 8a.

Results – Postoperative course was uneventful; the patient was discharged in 5th pod. The histopathological report showed a G3 pT1bN0 signet ring cell mucinous adenocarcinoma; 53 lymph nodes were harvested; ICG nodal mapping supported us during surgery.

Conclusions: The imaging of fluorescence emitted by ICG is a simple, fast, and relatively inexpensive tool without side effects that has numerous different applications in oncological surgery; among them, ICG nodal mapping is an inexpensive but useful tool that can help performing a high-quality lymphadenectomy during gastric cancer surgery.

3.

Robotic Subtotal Gastrectomy with D2 Lymphnode Dissection: Video

Authors:

Minoa K Jung, Mickael Chevally, Christian Toso, Stefan P Mönig

Introduction:

Minimally invasive robotic gastrectomy for gastric cancer shows slower adoption in Western countries compared to Asia. We show here a robotic subtotal gastrectomy with D2 Lymphnode Dissection in a Western patient with early gastric cancer.

Methods:

The greater omentum is divided for partial omentectomy distal to the gastroepiploic arcade and proceeded towards the lower pole of the spleen with retrieval of station 4sb. Followed by the dissection of Station 4d. LN bearing soft tissues, comprising station No 6, which is bordered by the right gastroepiploic vein, the anterosuperior pancreaticoduodenal vein and the right gastroepiploic artery are then dissected and the right gastroepiploic vein and artery clipped. The supraduodenal vessels are then dissected along the duodenal wall just above the pylorus to create a path for a linear stapler 2cm distal to the pylorus. After dissection of the right gastric artery and its ligation at the origin, we remove LN station 5. Removal of station 12 a is continued until exposure of the portal vein. Soft tissues are dissected at the superior border of the pancreas along the common hepatic artery (station 8a). The left gastric artery is skeletonized at its origin and station 7 is removed. The left gastric artery is divided at its origin after application of four surgical clips. Followed by removal of station 9 around the celiac trunk. The dissection is concluded with the dissection of station Nr 1 at the right cardia level and 11p along the proximal half of the splenic artery and vein. The reconstruction is performed by Roux-en-Y reconstruction with handsewn gastrojejunal and jejunojejunal anastomosis.

Conclusions

D2 dissection in subtotal gastrectomy has been shown to be safe and feasible with comparable oncologic outcome in this video by standardized robotic approach.

4.

DOUBLE-TRACT RECONSTRUCTION AFTER PROXIMAL GASTRECTOMY

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OBJECTIVES

Proximal gastrectomy (PG) is an oncological valid alternative to total gastrectomy (TG) in case of early-stage gastric cancers in the upper third of the stomach. PG is considered as a function-preserving procedure, allowing, at least theoretically, an improvement in terms of food storage, better assimilation of fats and proteins and maintenance of secretin and gastrin release. Double-tract reconstruction (DTR) was introduced as a potential reconstructive strategy for reducing the high rates of esophagogastric reflux, esophagitis and anastomotic stenosis correlated with esophagogastrectomy (EG).

METHODS

During the period jan. 2020 – jun. 2023, 7 PG with DTR were performed in our center (4 males). The mean age was 69,8 years (SD 13,5). Five patients had a cT1N0M0 adenocarcinoma of the upper third; 1 patient had a gastrointestinal stromal tumor (GIST) not amenable to local resection and 1 had a type 1 gastric neuroendocrine tumor (GNET). Six surgical interventions were made with an open technique (mean time 225 minutes, SD 51,3) and one patient underwent a laparoscopic PG (214 minutes).

RESULTS

There were no intra or post operative complications; there was 1 readmission for SSI. There were 3 patients with positive nodes at histology (3 adenocarcinoma and GNET). After a mean follow-up of 24,8 months (SD 16,3) all patients are alive with no evidence of disease. Four patients regained a normal eating habit and report a subjective good quality of life (QoL), while 3 suffer from early satiety and weight loss.

CONCLUSIONS

PG is a valid treatment option for early proximal cancers, although the functional benefits of DTR and oncological safety of PG for advanced disease still need to be confirmed by multicenter studies. Laparoscopic PG with DTR is feasible and may further improve the QoL of PG.

5.

TITLE:

LAPAROSCOPIC SUBTOTAL GASTRECTOMY WITH ROUX-EN-Y-RECONSTRUCTION IN A CIRRHOTIC PORTAL HYPERTENSION PATIENT

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VIDEO SUMMARY:

The development of minimally invasive technology allied to the centralization of treatment with more experts and high-volume centers has allowed this surgical approach to be offered to patients with gastric cancer even in more advanced stages. Based on radical oncological resection, preserving the function of the digestive tract, reducing the surgical aggression with reduction of morbidity and mortality and length of hospital stay the advantages are clear.

Despite this, there are patients who pose technical challenges. An example of this are cirrhotic patients, with portal hypertension.

The purpose of the video is to show the feasibility of a technically challenging procedure in this special kind of patient fulfilling the same principles of low morbidity and mortality.

The operation was successful. Total operation time was 132 minutes, with an estimated blood loss of 100 ml. The patient was discharged on the fourth postoperative day.

6.

MODIFIED ENDOSCOPIC VACUUM THERAPY: COULD IT BE A GAME-CHANGER IN THE MANAGEMENT FOR UPPER GASTROINTESTINAL LEAKS?

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Objectives:

Anastomotic upper gastrointestinal leaks are most dreaded complication in esophageal surgery associated with high morbidity and mortality. The optimal management of such leaks remains challenging.

A new modified endoscopic vacuum therapy system (MEVT) was recently described. This technique seems to be feasible, safe and cost-effective for the treatment of gastrointestinal transmural defects.

The MEVT is a homemade device built with a nasojejunal tube, gauze and antimicrobial tape. With the MEVT, enteral nutrition can be immediately and safely initiated.

Herein, we describe two video cases with description of the different steps of this technique, focusing on its applicability and outcomes.

Methods:

We present the cases of two male patients, 61- and 56-years-old, with distal esophageal adenocarcinoma operated with minimally invasive Ivor-Lewis esophagectomy. In the first postoperative week, both cases developed peri-anastomotic leaks with mediastinitis and right purulent pleural effusion. After multidisciplinary approach including nutritional optimization, antibiotics, endoscopic stent placement, CT-guided percutaneous drainage and thoracoscopic surgical debridement, the anastomotic defects persisted. One of the cases developed a tracheoesophageal fistula. Due to the failure of conventional therapy, a new approach was tried with MEVT.

Results:

Both cases evolved to clinical and technical success. The first case achieved fistula closure after two weeks with MEVT. In the tracheoesophageal fistula case, MEVT was crucial to get fistula's bed tissue repair, allowing a successful closure of the defect with an over-the-scope clip after three weeks with MEVT. By allowing enteral feeding, this strategy enabled a concomitant nutritional optimization. There were no adverse events related to this method in both patients and the patients remain asymptomatic 3 months after the procedures.

Conclusions:

MEVT was effective in the treatment of upper gastrointestinal leaks. Prospective studies are warranted before its promising dissemination in clinical practice.

7.

Minimally invasive pylorus-preserving gastrectomy – a step by step video guide

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Objectives:

Pylorus-preserving gastrectomy (PPG) is an established treatment option for patients with early-stage gastric cancer (cT1, cN0) situated in the middle third of the stomach and has been shown to have comparable perioperative and oncological outcomes to distal or total gastrectomy, while having certain nutritional advantages. PPG is mainly performed in east Asia, while the procedure is relatively unknown in European/American centers. The aim of the current video is to provide a step-by-step guide for performing a minimally invasive PPG with a focus on different anastomotic techniques for gastrogastrostomy.

Methods/Results:

The procedure is illustrated using real-time footage of two surgeries performed in August 2023 at Seoul National University Hospital, Republic of Korea, including a laparoscopically assisted PPG with extracorporeal anastomosis and a robotic PPG with intracorporeal gastrogastrostomy. The voiceover narration provides detailed explanations of each surgical step with a focus on anastomosis and dissection of relevant lymph node stations. The video also includes a discussion of the indications, contraindications, and potential complications of PPG.

Conclusion:

The high-quality video tutorial on PPG is a valuable and comprehensive resource for surgeons who are interested in learning more about the procedure, is easy to follow, and provides a comprehensive overview of the important steps of minimally invasive PPG.

8.

Educational Video of Robotic Proximal Gastrectomy with Double-Tract Reconstruction

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Objectives

Proximal gastrectomy with double-tract reconstruction (PG DTR) is a function-preserving surgery performed for gastric cancer located in the upper third of the stomach. According to KLASS-05, a nationwide multi-institutional prospective randomized control trial held in South Korea, laparoscopic PG DTR was shown to be as safe as laparoscopic total gastrectomy while requiring less vitamin B12 supplementation. This educational video aims to provide a comprehensive and instructive resource for surgeons interested in adopting the robotic approach for PG DTR.

Methods and Results

The video was meticulously crafted by editing real-time footage of a robotic PG DTR performed in August 2023 at Seoul National University Hospital (SNUH). The detailed steps of lymphadenectomy, resection, and anastomosis are illustrated. The intracorporeal phase was recorded via the Da Vinci Xi system, while the extracorporeal phase was recorded with an Olympus overhead camera.

Conclusions

This high-quality step-by-step video tutorial on PG DTR is a valuable and comprehensive resource for surgeons who are seeking to acquire or enhance their skills in performing robotic PG DTR. At SNUH, approximately 50 PG DTRs are performed each year, among which 23% are robotic. By sharing our experience and expertise, we aim to promote the wider adoption of this surgical technique, ultimately improving patient outcomes and minimizing surgical complications. We believe that this educational tool will contribute to the dissemination of best practices and facilitate the continued development of minimally-invasive function-preserving surgery for gastric cancer.

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