Comparison of OLGA and OLGIM as predictors of gastric cancer in a Latin American population: the ECHOS Study

We read with great interest the article by Lee *et al*[1] evaluating the risk of progression from chronic atrophic gastritis (CAG) with intestinal metaplasia (IM) to high-grade dysplasia (HGD) or gastric adenocarcinoma (GA), according to the Operative Link on Gastric Intestinal Metaplasia (OLGIM) staging system. Patients with OLGIM III–IV had a substantially increased risk of HGD/GA, with a median time to progression of 22.7 months, while patients with OLGIM II had an intermediate risk. These findings complement the results by Rugge *et al*,[2] demonstrating a higher risk of neoplastic progression among patients with Operative Link on Gastritis Assessment (OLGA) III–IV, but not OLGA II.

Studies directly comparing the predictive value of both OLGA and OLGIM systems in the same cohort are scarce.[3 4] We leveraged the 'Endoscopic Cohort and Histological OLGA staging' (trial: NCT05969444) to compare the predictive capability of OLGA versus OLGIM for HGD/GA. We included 685 Chilean adults who underwent an oesophagogastroduodenoscopy with gastric mapping biopsies, and who subsequently had at least one endoscopic surveillance examination with mapping biopsies completed at least 6 months apart (table 1). The primary outcome was histologically confirmed incident HGD or GA according to baseline OLGA and OLGIM stages (assessed by two experienced pathologists). The kappa values for interpathologist and intrapathologist agreement were 0.63 and 0.71 for OLGA, and 0.75 and 0.63 for OLGIM. We calculated HRs and 95% CIs using Cox regression adjusted for age, sex and active *Helicobacter pylori* infection.

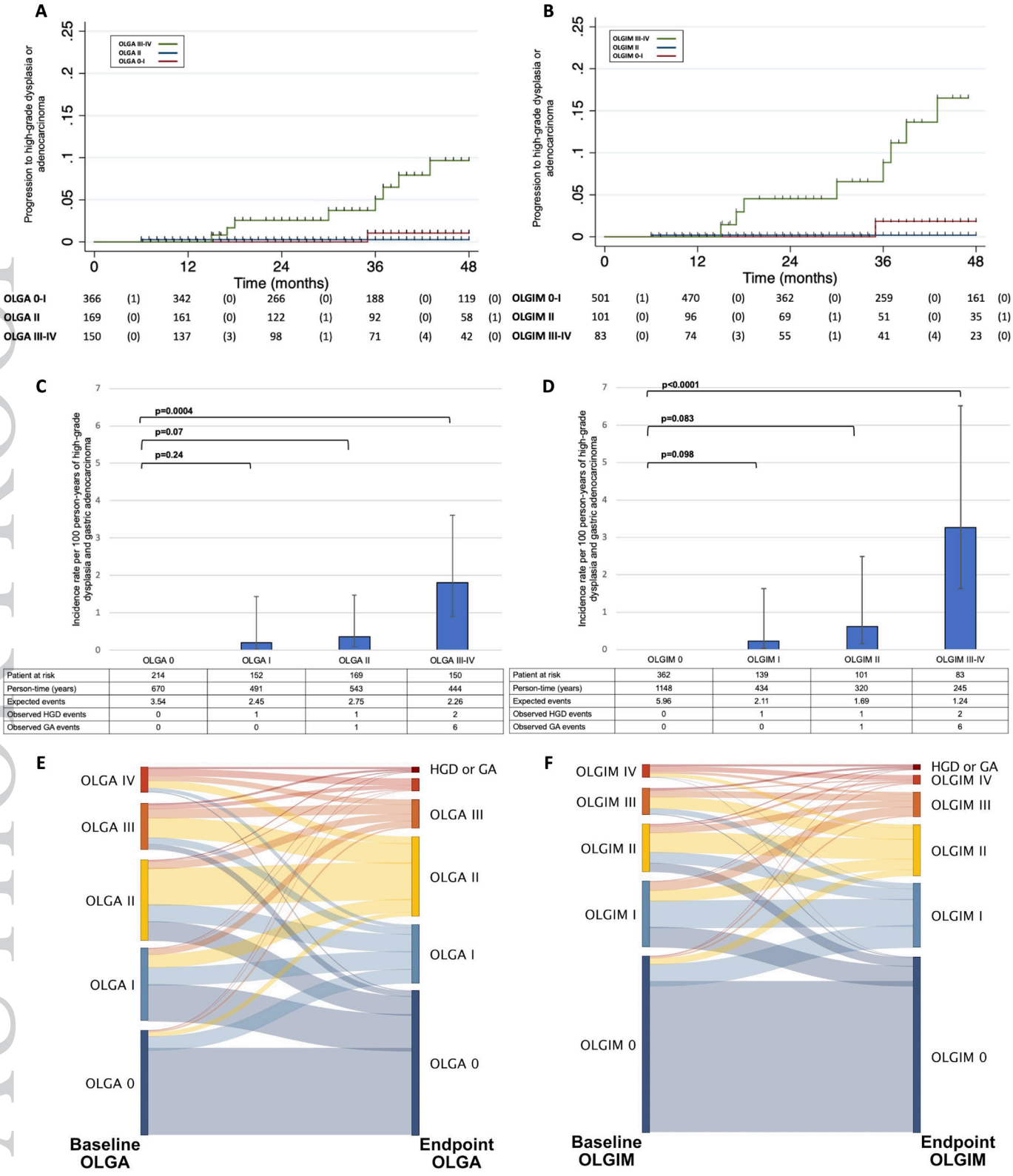
During a median of 3 years of follow-up (IQR 1.8–4.3), four HGD and seven GA were diagnosed (online supplemental figure 1). Patients with OLGA III–IV (1.8/100 person-years) and OLGIM III–IV (3.3/100 person-years) had substantially higher rates of HGD/GA compared with patients with respective OLGA or OLGIM 0–I. The adjusted HRs for HGD/GA were 14.8 (95% CI 1.8 to 125) and 34 (95% CI 4 to 286), respectively (figure 1A–D and online supplemental table 1). These results are consistent with those reported by Lee *et al* (OLGIM III–IV, HR 20.7; 95% CI 5.04 to 85.6).[1] In contrast, we did not observe a significantly increased risk of HGD/GA in patients with OLGA or OLGIM II. Outcomes of patients with low-grade dysplasia and autoimmune gastritis are described in the online supplemental material. The progression of CAG with or without IM varied according to OLGA and OLGIM stage, with a large proportion of patients remaining stable or even histologically regressing during follow-up (figure 1E,F). Notably, OLGIM demonstrated greater stability over time compared with OLGA (62% OLGIM remain stable during follow-up vs 47% OLGA; p<0.001), possibly related to lower interpathologist variability. These findings suggest that OLGIM may perform better than OLGA for real-world risk stratification.

From the vantage point of evaluating the benefit of endoscopic surveillance, nearly all (91%, 10 of 11) HGD/GAs were detected at early stages (online supplemental table 2). This observation contrasts with the reality in most Western countries, where GAs are mostly diagnosed at advanced stages.[5–7] International guidelines generally recommend surveillance at least every 3 years for advanced stages of CAG/IM,[8–10] but adherence to guidelines is suboptimal, and timely access to endoscopy and concerns regarding resource overutilisation pose challenges. Our findings emphasise the need to concentrate resources on patients with OLGA/OLGIM III–IV. Furthermore, during the first years of follow-up, only one early-stage GA was diagnosed (15 months) and the median times to HGD/GA in patients with OLGA III–IV and OLGIM III–IV were 33 months. Taken together, surveillance every 3 years in patients with OLGA/OLGIM III–IV might

Table 1 Demographical, histological and follow-up variables according to OLGA groups

	OLGA 0–I n=366	OLGA II n=169	OLGA III–IV n=150	P value*
Sex, n (%)				
Female	240 (65.6)	117 (69.2)	88 (58.7)	0.13
Male	126 (34.4)	52 (30.8)	62 (41.3)	
Age in years, mean (SD)	55 (11.1)	55 (12.6)	60 (10.3)	**<0.001**
Tobacco, n (%)				
Active smoker	76 (20.8)	33 (19.5)	27 (18)	
Former smoker	36 (9.8)	23 (13.6)	33 (22)	**0.009**
Never smoker	254 (69.4)	113 (66.9)	90 (60)	
Active alcohol consumption†, n (%)	171 (46.7)	78 (46.1)	66 (44)	0.85
First-degree family history of gastric cancer, n (%)	120 (32.8)	31 (18.3)	31 (20.7)	**0.001**
Baseline active infection by *Helicobacter pylori*‡, n (%)	114 (31.2)	48 (28.4)	51 (34)	0.56
Persistent *H. pylori* infection, n (%)	29 (7.9)	11 (6.5)	4 (2.7)	0.09
Intestinal metaplasia, n (%)	91 (24.9)	127 (75.2)	140 (93.3)	**<0.001**
Anatomical extent				
Antrum-restricted	70 (19.1)	61 (36.1)	56 (37.3)	**<0.001**
Corpus-extended	21 (5.7)	66 (39.1)	84 (56)	
Histopathological subtype§				
Complete-type	20 (5.5)	46 (27.2)	32 (21.3)	
Incomplete-type	53 (14.5)	55 (32.5)	76 (50.7)	**<0.001**
Unavailable	18 (4.9)	26 (15.4)	32 (21.3)	
OLGIM				
0–I	366 (100)	104 (61.5)	31 (20.7)	
II	0 (0)	65 (38.5)	36 (24)	**<0.001**
III–IV	0 (0)	0 (0)	83 (55.3)	
Baseline low-grade dysplasia (LGD)¶, n (%)	0 (0)	3 (1.8)	9 (6)	**<0.001**
Autoimmune gastritis, n (%)	5 (1.4)	61 (36.1)	18 (12)	**<0.001**
Follow-up in months, median (IQR)	36 (22–52)	38 (22–52)	33 (17–51)	0.23
Number of surveillance endoscopies, median (range)	1 (1–1)	1 (1–2)	2 (1–2)	**<0.001**

*$\chi 2$ (categorical variables); one-way ANOVA or Wilcoxon (numerical variables).
†Any amount.
‡*H. pylori* infection based on Giemsa staining in any of the gastric samples.
§The highest histopathological grade observed was considered for diagnosis.
¶No cases of indefinite for dysplasia were observed and all LGDs were confirmed by two expert pathologists.
ANOVA, analysis of variance; OLGA, Operative Link on Gastritis Assessment; OLGIM, Operative Link on Gastric Intestinal Metaplasia.



OLGA 0-I	366	(1)	342	(0)	266	(0)	188	(0)	119	(0)
OLGA II	169	(0)	161	(0)	122	(1)	92	(0)	58	(1)
OLGA III-IV	150	(0)	137	(3)	98	(1)	71	(4)	42	(0)

OLGIM 0-I	501	(1)	470	(0)	362	(0)	259	(0)	161	(0)
OLGIM II	101	(0)	96	(0)	69	(1)	51	(0)	35	(1)
OLGIM III-IV	83	(0)	74	(3)	55	(1)	41	(4)	23	(0)

	OLGA 0	OLGA I	OLGA II	OLGA III-IV
Patient at risk	214	152	169	150
Person-time (years)	670	491	543	444
Expected events	3.54	2.45	2.75	2.26
Observed HGD events	0	1	1	2
Observed GA events	0	0	1	6

	OLGIM 0	OLGIM I	OLGIM II	OLGIM III-IV
Patient at risk	362	139	101	83
Person-time (years)	1148	434	320	245
Expected events	5.96	2.11	1.69	1.24
Observed HGD events	0	1	1	2
Observed GA events	0	0	1	6

Figure 1 Comparison of performance of OLGA (Operative Link on Gastritis Assessment) and OLGIM (Operative Link on Gastric Intestinal Metaplasia). (A,B) Cumulative risk curves of the primary composite outcome high-grade dysplasia (HGD) or gastric adenocarcinoma (GA) according to the baseline OLGA (left) and OLGIM (right) with at-risk tables and events in parenthesis bellow. (C,D) Incidence rates per 100 person-years of HGD and GA according to OLGA (left) and OLGIM (right). Error bars represent the 95% CIs and differences are established by log-rank test for equality survival function. (E,F) Dynamics of OLGA (left) and OLGIM (right) during the follow-up.

strike the optimal balance between resource allocation and early detection of GA, even in high-risk Latin American populations. Nevertheless, randomised trials evaluating surveillance strategies are pressingly needed to determine the optimal endoscopic intervals for patients with high-risk gastric premalignant conditions.

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Contributors GL, FS, JU, MP, PA, AHC, RC, AE, MCC, SS and AR conceived and designed the study. GL, JU, OCS, DR, PA, AD, RC, CA, RG, JIV, AE and AR recruited patients and performed oesophagogastroduodenoscopy. GL, FS, IM, MB, ED, JU, OCS, DR and SP collected data. JT, JCR and SP performed histopathological analysis. GL, EF-L, IW, AHC, RC, AE, MCC, SS and AR analysed the data. GL, FS, MP, PM, SP, PA, IW, AHC, RC, CA, AE, MCC, SS and AR wrote the manuscript. GL, FS, IM, MB, ED, JU, OCS, DR, EF-L, MP, PM, JT, JCR, SP, PA, AD, IW, AHC, JC, RC, CA, RG, JIV, AE, MCC, SS and AR reviewed the manuscript.

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