

AWARENESS AND COMPLIANCE WITH THE UPDATED SYDNEY SYSTEM RECOMMENDATIONS AMONG NIGERIAN GASTROINTESTINAL ENDOSCOPISTS

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ABSTRACT

Background: It has been reported that gastric biopsy sets that comply with the Updated Sydney System (USS) biopsy sampling protocol have significantly better histological yield than those that do not for the most common gastric inflammatory conditions: *Helicobacter pylori* and intestinal metaplasia. We determined the level of awareness and compliance with the USS guidelines among Nigerian gastrointestinal endoscopists.

Methods: In a descriptive cross-sectional survey, we interviewed all consenting gastrointestinal endoscopists practicing in Nigeria from March to July 2016. A 13-item self-administered questionnaire consisting of socio-demographic data (6-items), knowledge of the USS guidelines (4-items) and compliance with the biopsy sampling protocol (3-items) was used.

Results: A total of 45 respondents in all were included in the final analysis. Of the 45 respondents, 29 (64.4%) were males while 16 (35.6%) were females. The mean age of the participants was 43.70 (± 6.91) while the age range was 32-60 years. The mean year of endoscopy practice was 6.82 (± 5.55) while the range was 1 to 25 years. Twenty-nine (64.4%) participants were generally aware of the USS, 25 (55.6%) knew the recommended number of biopsies, while 26 (57.8%) knew the 3 recommended gastric regions. Only 13 (28.9%) of the participants regularly took the recommended number of biopsies, 14 (31.1%) regularly sampled all the recommended stomach regions while 25 (55.6%) respondents regularly separated biopsies from different regions of the stomach into different containers, according to the USS protocol. However, the knowledge of the recommended number of biopsies and the recommended regions both had significant associations ($p = 0.020$ and $p = 0.021$ respectively) with correspondent endoscopy practices.

Conclusion: While the level of awareness and knowledge of the USS guidelines could be considered fair among Nigerian gastrointestinal endoscopists, the level of compliance with the prescribed biopsy sampling protocol is poor. There is a need for relevant professional bodies like SOGHIN to create the awareness of the practice guidelines among their members with proper emphasis on the positive relationship between compliance and gastric histologic yield.

Keywords: Updated Sydney System, Gastrointestinal Endoscopists, Gastric biopsy, Gastritis, Nigeria

INTRODUCTION

A group of gastroenterologists and pathologists at the World Congress of Gastroenterology in Sydney in 1990 proposed a new etiology and topography-based classification of gastritis called “the Sydney System”.¹ Their proposal was premised on the earlier discovery of *Helicobacter pylori* (*H. pylori*) by Warren and Marshall and the increasing realization that it was the most important etiological factor responsible for the various chronic gastritis phenotypes and their complications such as peptic ulcer disease (PUD), gastric cancer and gastric mucosal associated lymphoid tissue (MALT) lymphoma.²

A modified version of this classification known as “the Updated Sydney System” (USS), also called “the Houston System”, was published in 1996.³ Since then, the USS has gained acceptance among pathologists and become the standard method of classification and reporting gastritis worldwide.⁴

Both the old and the updated versions of the Sydney System offer guidelines on how to grade various types of inflammatory parameters and combine the grading into topographically defined entities such as antrum-predominant gastritis, corpus-restricted atrophic gastritis and pangastritis.^{1,3} They also recommended biopsy sampling protocols that included a minimum of two separate biopsy specimens from the antrum and two from the corpus from both the lesser and the greater curvatures of the stomach in addition to the histological grading and classification. The updated version included an additional sample from the incisura angularis because some of the participants believed it represents the location where the earliest changes of atrophy, metaplasia and dysplasia occur.³⁻⁵

Since the publication of the USS, a few studies have addressed the relative yield of gastric biopsies for the evaluation of some specific aspects of gastritis.⁴ Lash and Genta in a study that examined gastric biopsies from 400,738 procedures performed by gastroenterologists operating in private out-patient endoscopy centers across the United States (US) reported that biopsy sets that were compliant with the Sydney System (those that included two or more biopsies from the antrum and two or more from the corpus) had significantly greater yield than most of the unspecified or single-site sets for the most common gastric inflammatory conditions (*H. pylori* and intestinal metaplasia).⁴ Another study conducted by Mastracci

et al. to systematically assess the impact of number and site of biopsies on the accuracy of gastric intestinal metaplasia detection found that a three biopsy set (2 antral, one each from the greater and lesser curvature with 1 angular) allows correct detection of intestinal metaplasia extent in 90% of cases.⁶

Lash and Genta in their study also reported an abysmally low compliance rate among the US endoscopists with the USS. Of the 400,738 procedures, there was no single set of three separate containers with samples from the antrum, incisura angularis, and corpus. Of the 27,412 endoscopies that resulted in the submission of two separate containers, only 15,730 (3.9% of all procedures) included two or more biopsies from the antrum and two or more from the corpus.⁴

Knowing that compliance with the USS objectively improves significantly the yield of the most common gastric inflammatory conditions as compared to non-compliance as demonstrated by the cited studies, this present study seeks to determine the level of awareness and compliance with the practice guideline among Nigerian gastrointestinal endoscopists.

METHODS

Study design, setting and population

The study was a descriptive cross-sectional survey. It was conducted in Nigeria among Nigerian based gastrointestinal endoscopists from March to July 2016. All consenting gastrointestinal endoscopists practicing in Nigeria were included. Nigerian gastrointestinal endoscopists who were not practicing in Nigeria at the time of the study were excluded. Written informed consent was obtained from all the participants.

Research instrument and data collection

A 13-item self-administered questionnaire consisting of socio-demographic data (6-items), knowledge of the Updated Sydney System guidelines (4-items) and compliance with the guidelines (3-items) was used. The questionnaire was administered by both electronic and physical means.

The questionnaire was sent by electronic mail (email) to prospective participants all over the country via the Society for Gastroenterology and Hepatology in Nigeria’s (SOGHIN) group-email address with a reminder after two weeks of the initial mail. Nineteen participants responded by email. Thirty-three

endoscopists who did not respond to our initial email enquiry were later approached by one of the investigators at the 2016 SOGHIN Annual Scientific Conference between 21 -23 July, 2016 in Lagos, Nigeria.

Statistical analysis: Data analysis was done with the IBM- Statistical Package for Social Sciences (SPSS), version 20. Continuous variables were presented as means \pm S.D. Categorical variables were expressed as frequencies and percentages. Differences between categorical variables were compared using Pearson Chi-square test. Variables with P values < 0.05 were considered statistically significant.

RESULTS

Nineteen participants responded by email. Of the 33 Endoscopist who were approached at the SOGHIN 2016 Conference, 3 declined participation, 2 collected the questionnaire but did not return it, while 28 returned the filled questionnaire. Of the 28 filled questionnaires, 2 were excluded from data analysis because of grossly inadequate information supply. A total of 45 respondents in all were included in the final analysis. The results of the 45 respondents are here presented. Twenty-one of the 36 Nigerian States and the Federal Capital Territory were represented. The demographic characteristics of the respondents are depicted in Table 1. Of the 45 respondents, 29 (64.4%) were males while

Table 1: Demographic characteristics of Nigerian Gastrointestinal Endoscopists (n = 45)

Variables	Frequency (%)
Gender	
Male	29(64.4)
Female	16(35.6)
Medical specialty	
Internal Medicine	41(91.1)
Surgery	3 (6.7)
Missing	1 (2.2)
Academic position	
Yes	21 (46.7)
No	24 (53.3)

Mean age in years (SD) = 43.70 (\pm 6.91)

Mean year of medical practice (SD) = 18.31 (\pm 6.89)

Mean year of endoscopy practice (SD) = 6.82 (\pm 5.55)

16 (35.6%) were females. The mean age of the participants was 43.70 (\pm 6.91) while the age range was 32-60 years. The mean year of medical practice was 18.31 (\pm 6.89) while the range was 7 to 36 years. The mean year of endoscopy practice was 6.82 (\pm 5.55) while the range was 1 to 25 years. Twenty-one (46.7%) of the respondents were academic physicians while the remaining were not. In regard to medical specialty, 41 (91.1%) participants were medical gastroenterologists, 3 (6.7%) participants were gastrointestinal surgeons while one did not supply the information.

Table 2: Knowledge of the updated Sydney system among Nigerian Gastrointestinal Endoscopists (n =45)

Variable	Frequency (%)
General awareness	
Yes	29 (64.4)
No	16 (35.6)
Number of biopsies	
Correct	25 (55.6)
Incorrect	20 (44.4)
Recommended stomach regions	
Correct	26 (57.8)
Incorrect	19 (42.2)
Compliance makes difference	
Yes	25 (55.6)
No	1 (2.2)
Not sure	19 (42.2)

Table 2 shows the knowledge of the USS among the study participants. Twenty-nine (64.4%) participants were generally aware of the USS, 25

(55.6%) knew the recommended number of biopsies, while 26 (57.8%) knew the three recommended gastric regions. Twenty-five (55.6%) of the participants believed compliance with the USS recommendations makes a difference in the histological yield of the biopsies for gastritis, 19 (42.2%) were not sure if compliance makes any difference, while 1(2.2%) said compliance does not make any difference.

Table 3 shows the relationship between USS awareness with gender, holding of academic position

Table 3: USS awareness relationship with gender, academic position and years of endoscopy practice (n = 45)

	Awareness		χ^2	P-Value
	Yes	No		
Gender				
Male	21 (72.4)	8 (27.6)	2.261	0.195
Female	8 (50.0)	8 (50.0)		
Academic Position				
Yes	14 (66.7)	7 (33.3)	0.085	1.000
No	15 (62.5)	9 (37.5)		
Years of Endoscopy Practice				
1-5	14 (63.6)	8 (36.4)	0.012	1.000
≥ 6	15 (65.2)	8 (34.8)		

USS, Updated Sydney System

Table 4: Compliance with the USS guidelines among Nigerian Gastrointestinal Endoscopists (n = 45)

Variable	Frequency
NOB regularly taken	
1-3	16 (35.6)
4	16 (35.6)
5	13 (28.9)
Regions of stomach	
AB	23 (51.1)
ABI	14 (31.1)
Others	8 (17.8)
Sample separation	
Always	25 (55.6)
Sometimes	12 (26.7)
Not at all	8 (17.8)

USS, Updated Sydney System;

NOB, Number of biopsies;

AB, Antrum and Body;

ABI, Antrum, Body and Incisura

and years of endoscopy practice. None of the relationships was statistically significant.

The levels of compliance with the USS recommendations by Nigerian gastrointestinal endoscopists are shown on Table 4. Only 13 (28.9%) participants regularly take 5 gastric biopsies. Sixteen participants (35.6%) take 4 biopsies regularly while the remaining 16 (35.5%) take 1 to 3 biopsies routinely. In regard to the regions of the stomach routinely sampled for gastritis, only 14 (31.1%) respondents regularly sample the antrum, body and the incisura in the same procedure. Twenty-three (51.1%) respondents regularly sample the antrum and the body, while the remaining 8 (17.8%) regularly sample a variety of regions of the stomach apart from the stated ones. Twenty-five (55.6%) respondents regularly separate biopsies from different regions of the stomach into different containers, according to the USS guideline. While 12 (26.7%) of the participants sometimes separate the biopsies, but do not separate them at all times, 8 (17.8%) put all the biopsies from all regions of the stomach into the same container all the time.

Table 5: Impact of USS knowledge on practice among Nigerian Gastrointestinal Endoscopists (n = 45)

	Knowledge		X^2	P-Value
	Yes	No		
Number of Biopsies taken				
Correct	11 (44.0)	2 (10.0)	6.252	0.020
Incorrect	14 (56.0)	18 (90.0)		
Sites of Biopsy				
Correct	12 (46.2)	2 (10.5)	6.502	0.021
Incorrect	14 (53.8)	17 (89.5)		

USS, Updated Sydney System

Table 5 shows the impact of the USS knowledge on practice among the participants. The knowledge of the recommended number of biopsies that should be taken for gastritis evaluation had a statistically significant relationship with the correspondent endoscopy practice among the respondents ($p = 0.020$). The knowledge of the recommended regions of the stomach where the biopsies ought to be taken also had a statistically significant relationship with the correspondent endoscopy practice among the participants ($P = 0.021$).

DISCUSSION

This is the first audit of the knowledge of the USS guidelines for gastritis evaluation and the compliance thereof among Nigerian gastrointestinal endoscopists to the best of our knowledge.

Our study shows that the levels of general awareness, knowledge of specific components of the guidelines and the knowledge of the impact of compliance on practice among the study participants, though not excellent, are generally above average [Table 1].

We noticed that gender, holding of an academic position and years of practice as a gastrointestinal endoscopist had no significant impact on the level of general awareness of the USS guidelines. The reason for this cannot be immediately explained, but it could mean that the level of exposure to the practice guidelines is even among all the strata of the Nigerian gastrointestinal endoscopists who participated in the study. This could be a group cohort effect as all the respondents belong to SOGHIN, an organization that provides avenue for regular knowledge update among its members.

Our study reveals that compliance with the USS guidelines in terms of the number of biopsies to be taken (5 biopsies) and the regions of the stomach to be biopsied (antrum, body and incisura) was poor (28.9% and 31.1% respectively). However, compliance in relation to separation of biopsies from different regions of the stomach into different containers was average (55.6%). We observed that more of the study participants observe the old Sydney System guidelines in relation to the number of biopsies taken and the site of biopsies as compared to the updated guidelines [Table 4]. This observation could be an indication of a knowledge gap or unwillingness to accept the updated guidelines.

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Despite the low level of compliance with the USS guidelines among the study participants, we observed that the knowledge of two specific aspects of the USS guidelines was statistically significantly related to their practice [Table 5]. This implies that there is need to create more awareness of the USS guidelines among Nigerian gastrointestinal endoscopists since it has been shown to improve gastric biopsy histological yield in relation to *H. pylori*-associated gastritis and intestinal metaplasia.^{4,6}

The drawbacks to this study are those that are generally related to self-reported studies which involve the possibility of over or under-reporting and the relatively small sample size. A prospective study using gastric biopsy records at pathology laboratories is desirable.

CONCLUSION

While the level of awareness and knowledge of the USS guidelines could be considered fair among Nigerian gastrointestinal endoscopists, the level of compliance with the practice guidelines is poor. Of note is the fact that compliance is significantly associated with knowledge.

There is a need for relevant professional bodies like SOGHIN to create the awareness of the practice guidelines among their members with proper emphasis on the positive relationship between compliance and gastric histologic yield.

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