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Physicians' Perspective On Preventing Stress Peptic Ulcer Disease At King Abdullah Hospital In Bisha City, Saudi Arabia

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ABSTRACT

Objective: This study was focused on determining Physicians' perspectives on Stress-Peptic Ulcer Disease prevention and assessing their understanding of SUP guidelines in KSA.
Methods: This descriptive cross-sectional study assessed Physician's knowledge about Stress Peptic Ulcer Disease prevention at King Abdullah Hospital (KAH). The study involved physicians and interns at KAH in Bisha City. The data was collected using an electronic questionnaire through text messages or phone calls. Both data entry and statistical analyses were performed using SPSS. The appropriate statistical tests were used and considered statistically significant at $P<0.05$.
Results: A total of 96 physicians and interns participated in the study, providing valuable insights into their understanding and knowledge of preventing Stress Peptic Ulcer Disease (SPUD). Female physicians were significantly more likely to use SUP than male physicians ($p = 0.035$, 95% confidence interval for the odds ratio: 0.007 to 0.831). Qualitative data provided valuable insights into physicians' understanding and knowledge of SPUD prevention, highlighting areas of strength and potential areas for improvement or intervention. It underscores the importance of ongoing education and training to ensure healthcare professionals are equipped with accurate and up-to-date information on SPUD prevention strategies.
Conclusion: Proton pump inhibitors are the most widely used preventive measure, and patients are frequently kept on acid suppression therapy even after being released from the hospital. However, medical professionals need more education and awareness about SUP guidelines and proper prescribing practices.
Keywords: Physicians' perspective on preventing Stress Peptic Ulcer Disease at King Abdullah Hospital in Bisha City, Saudi Arabia.

1. Introduction

Gastrointestinal bleeding was a rare condition previously, only seen in severely ill patients. The incidence of the condition significantly increased over time, especially in the middle of the twentieth century. Thus, more attention and research have been conducted to identify the mechanism and pathogenesis of stress-induced upper gastrointestinal bleeding. Since surgery was related to a high mortality rate among intensive care unit patients with bleeding-stress ulcers, some other preventative measures went under investigation. Even though there is a noticeable downgrade in cases, there are still patients suffering from severe ulcers complicated by bleeding (1). Jiajia Ren, Xuting Jin, et al. estimated the global burden of the disease in a period from 1990 to 2019, which, in conclusion, clarified the drop in mortality and disability-adjusted life

years (DALYs) (2). The outcomes will be better when specific measures are applied, such as supportive treatment, adequate oxygenation, and fluid administration. Promising new measures are established to decrease stress in particular situations (1). Low physician knowledge and overprescribing in clinical practice have become noticeable concerns.

Furthermore, most of the physicians were unaware of the side effects of proton pump inhibitors (PPI), which are often used in such cases (3). Therefore, the Ministry of Health in Saudi Arabia published guidelines and strict indications for stress ulcer prophylaxis (SUP) to be followed nationwide (4). Some medications approved as SUP are relatively expensive, but that does not prevent physicians from overprescribing (3). They need to be more aware and stick to the newly established guidelines. The incoming interns, in general, also needed to improve their awareness of low-value care and a need for wisdom in choosing the best in all aspects of care (5).

Unjustifiable use of PPIs has unfavorable outcomes; infections, chronic kidney disease, and even gastric malignancy are all adverse outcomes of PPI usage (3,6). Thus, the use of SUP should be controlled, and a positive attitude toward SUP's indications should also be encouraged. A study that was conducted in Riyadh, Saudi Arabia, on a total of 414 healthcare professionals showed that 92.3% of them think that there is an overuse of PPIs in Saudi Arabia, whereas 73.7% of them claimed that the main reason that there is an overuse PPIs is due to SUP (6). Another study that was conducted in Jeddah, Saudi Arabia, on a total of 112 physicians showed that nearly half of the physicians had prescribed PPIs to their patients, and most of them were unable to identify some of the possible adverse effects accompanied by PPIs. About 31.3% of physicians had never warned their patients about any potential side effects, whereas 34.8% advised their patients to continue to consume PPIs until the symptoms disappeared without giving explicit instructions (7). Physicians prescribe SUP for various reasons. Four main reasons were mentioned in a study conducted in Baystate Medical Center, United States, on 98 physicians. The first reason was the fear that a noncritically ill patient would eventually develop gastrointestinal bleeding. The second reason is the fear of legal repercussions. The third reason was that physicians were unaware of the adverse effects of SUP and its indications (8). Although the last problem can be prevented by following the SUP guidelines, a study in China on 1266 physicians showed that up to 46% needed to be made aware of the SUP guidelines (9).

King Abdullah Hospital, located in Bisha City, Saudi Arabia, is a pivotal healthcare institution in the region, catering to a diverse patient population. Within this context, understanding the extent of physicians' awareness and knowledge regarding SPUD prevention becomes imperative for effective patient management and healthcare resource allocation. Therefore, this study aims to evaluate the understanding and expertise of physicians in preventing Stress Peptic Ulcer Disease at King Abdullah Hospital in Bisha City, Saudi Arabia.

By assessing physicians' comprehension of SPUD prevention strategies, this study seeks to identify potential gaps in knowledge and areas for improvement in medical education and clinical practice. Ultimately, enhancing physicians' awareness and understanding regarding SPUD prevention can contribute to better patient outcomes, reduced healthcare costs, and improved overall quality of care at King Abdullah Hospital and beyond. Through this investigation, we aim to provide insights that inform targeted interventions and educational initiatives to mitigate the burden of SPUD in Bisha City, Saudi Arabia, and similar healthcare settings worldwide.

2. Material and Methods

Study Design and Area: This descriptive, cross-sectional study assessed physicians' knowledge at King Abdullah Hospital (KAH) regarding preventing Stress-Peptic Ulcer Disease (SPUD).

Study Population:

Inclusion Criteria: Physicians and interns working at KAH in Bisha City across all departments. Who were willing to participate in the study and provided their consent.

Exclusion Criteria: Physicians and interns who declined participation or could not communicate effectively with the questionnaire were excluded from the study.

Sampling Size: All doctors at King Abdullah Hospital during the study period were included.

Data Collection: Over two months, physicians and interns at King Abdullah Hospital received an electronic questionnaire via text message or phone call.

Knowledge assessment:

Physicians' knowledge regarding the prevention of Stress Peptic Ulcer Disease (SPUD) was assessed through a structured electronic questionnaire distributed to physicians and interns at King Abdullah Hospital (KAH) in Bisha City, Saudi Arabia.

The questionnaire covered various aspects of SPUD prevention, including understanding risk factors, awareness of preventive measures, familiarity with stress management techniques, and knowledge of lifestyle modifications.

Physicians' responses to the questionnaire provided insights into their level of understanding and knowledge regarding SPUD prevention strategies. The questionnaire likely included multiple-choice questions, Likert scale items, and open-ended questions to gather comprehensive data.

After data collection, statistical analysis was performed using SPSS (Statistical Package for the Social Sciences) software to assess physicians' knowledge levels quantitatively. Parametric and non-parametric statistical tests were used to analyze the data, with a significance level of $p < 0.05$.

Overall, they assess physicians' knowledge and systematically evaluate their understanding of SPUD prevention measures, aiming to identify areas of strength and areas requiring improvement in their knowledge base.

Ethical Consideration: Ethical clearance was obtained from the University of Bisha College of Medicine (UBCOM) 's ethical committee. Ref No.: UB-RELOC H-06-BH-087/ (0907.23) Date: Wednesday, November 01, 2023. Approval was also obtained from the relevant school authorities, and participants provided their informed consent to be included in the research through a consent letter.

3. RESULTS

A total of 96 physicians and interns participated in the study, providing valuable insights into their understanding and knowledge of preventing Stress Peptic Ulcer Disease (SPUD) at King Abdullah Hospital (KAH) in Bisha City, Saudi Arabia.

Table 1 shows the socio-demographic characteristics of the participants. The participants who satisfied the inclusion requirements and agreed to participate in the study were 96. Among the participants, the average age and standard deviation were 34.87 ± 10.57. In addition, 76 (79.2%) participants were men, and 20 (20.8%) were women. Further, 62 (64.6%) participants attended medical schools in Saudi Arabia, whereas about 22(22.9%) attended medical schools abroad. There were 22 (22.9%) consultants, 27 (28.1%) practitioners, 28 (29.2%) residents, and 19 (19.8%) specialists. The average and standard deviation of the years serviced by the consultant was 6.76 ± 5.93. Several specialties represented among the participants include dermatology, general surgery, ICU, internal medicine, neurosurgery, orthopedic surgery, plastic surgery, radiology, urology, anesthesia, anatomy, cardiology consultant, and cardiovascular.

According to Table 2, most of the participants stated that medical school 78 (81.3%) was their primary source of information about stress ulcer prophylaxis (SUP), followed by personal experience 20 (20.8%) and intensive care unit (ICU) rotation 16 (16.7%). The remaining participants reported needing more information. Furthermore, 53 out of the 96 participants, or 55.2%, reported prescribing SUP according to the guidelines for ICU and non-ICU adult patients. Conversely, the most often selected method of stress ulcer prevention was the use of proton pump inhibitors 83 (86.5%). Furthermore, most of the participants, 69 (71.9%), indicated that when a patient's condition changes, they should be assessed for the need for SUP. Looking at why they would recommend stress ulcer prophylaxis (SUP), 88 participants (91.7%) indicated that they would recommend it because they think stress ulcer prophylaxis effectively prevents GI bleeding. Additionally, 79 participants (82.3%) indicated that if they began acid suppression therapy in the hospital, they would continue it after being discharged. Omeprazole 53 (55.2%) and esomeprazole 30 (31.3%) were the most frequently selected medications for prescriptions. In terms of SUP indications, patients on NSAIDs (including aspirin) or corticosteroids who are aged 65 years or older 68 (70.8%), patients on mechanical ventilation for greater than 48 hours 64 (66.7%), and patients with a history of GI ulceration or GI bleeding within the previous year 60 (62.5%) were the most frequently selected indications. Patients with burns covering more than 35% of the body surface area 46 (47.9%), traumatic brain injury or traumatic spinal cord injury 41 (42.7%), and chronic liver disease 34 (35.4%) were among the less common indications.

Table (3) presents the association between various demographic characteristics of physicians and their use of Stress Ulcer Prophylaxis (SUP) to prevent Peptic Ulcer Disease. The difference in the mean age between physicians who use Stress Ulcer Prophylaxis (SUP) for Peptic Ulcer Disease prevention and those who do was not statistically significant ($p = 0.219$, 95% CI for the mean difference: -0.881 to 1.737). Female

physicians were significantly more likely to use SUP than male physicians (p = 0.035, 95% confidence interval for the odds ratio: 0.007 to 0.831).
There was no statistically significant difference in the use of SUP between physicians who attended international medical schools and those who attended medical schools in Saudi Arabia (p = 0.203, 95% CI for the odds ratio: 0.291 to 330.99).
There were no statistically significant differences in the use of SUP among different positions in the medical team (Consultant, Practitioner, Residence, Specialist) (p > 0.05 for all categories).
The length of service as a consultant did not significantly influence the use of SUP for Peptic Ulcer Disease prevention (p = 0.783, 95% CI for the mean difference: -0.535 to 1.603).
These results suggest that gender plays a significant role in physicians' use of SUP for Peptic Ulcer Disease prevention, with female physicians being more likely to utilize it than male physicians. Other demographic factors such as age, medical school attended, position in the medical team, and length of service as a consultant did not show significant associations with the use of SUP.

Qualitative data

Qualitative data (table 4) provides valuable insights into physicians' understanding and knowledge of SPUD prevention, highlighting areas of strength and potential areas for improvement or intervention. It underscores the importance of ongoing education and training to ensure healthcare professionals are equipped with accurate and up-to-date information on SPUD prevention strategies.

1. Awareness of SPUD:

Recognition of Symptoms: Most physicians can identify symptoms of stress peptic ulcer disease (SPUD). This suggests a baseline understanding among physicians regarding the clinical presentation of SPUD.
Knowledge of Risk Factors: Physicians recognize stress, NSAIDs, and H. pylori as risk factors for SPUD. This indicates an awareness of critical factors contributing to SPUD development, which is crucial for prevention and management.

2. Prevention Strategies:

Medication Usage: Many physicians prescribe Proton Pump Inhibitors (PPIs) for SPUD prevention. This suggests a common pharmacological approach to SPUD prevention among physicians.
Lifestyle Modifications: Few physicians recommend dietary changes or stress management techniques for SPUD prevention. This highlights a potential gap in physician awareness or emphasis on non-pharmacological preventive measures.

3. Knowledge Gaps:

Limited Awareness: Some physicians need to gain knowledge about SPUD prevention. This underscores the need for additional education and training on SPUD prevention strategies among healthcare professionals.
Misconceptions: A few physicians hold misconceptions about effective preventive measures for SPUD. This indicates the presence of incorrect beliefs or assumptions among some physicians, which could impact patient care.
Inconsistent Practices: Physicians' practices for SPUD prevention vary. This variability suggests a lack of standardized approaches to SPUD prevention, which could influence patient outcomes and healthcare quality.

1. DISCUSSION

This study focused on determining the Physician's knowledge about stress peptic ulcer disease prevention and assessing the knowledge of SUP guidelines in KSA. Based on the study findings, most of the participants revealed that medical school 78 (81.3%) was their primary source of information about stress ulcer prophylaxis (SUP), followed by personal experience 20 (20.8%) and intensive care unit (ICU) rotation 16 (16.7%). In a study by Koczka et al., the most reported source of information regarding stress ulcer prophylaxis (SUP) was through medical centers and individuals with personal experience with the disease. The study noted that there needs to be more awareness of the disease in the general population, which needs to be addressed by medical professionals [10].
According to the study's findings, 53 (55.2%) participants reported prescribing SUP per the guidelines for adult ICU and non-ICU patients. Conversely, the most often selected method of stress ulcer prevention was the use of proton pump inhibitors 83 (86.5%). This was consistent with the findings in a study by Daley et al., which noted that proton pump inhibitors (23.1%), sucralfate (12.2%), and histamine-2 receptor

antagonists (63.9%) are the first-line medications chosen for stress ulcer prophylaxis. When compared to the overall respondents (26.9%), those who selected sucralfate as their initial therapy (61%) expressed a more significant concern for nosocomial pneumonia with antisecretory therapies (p <.001) [11].
Furthermore, most of the participants, 69 (71.9%), indicated that when a patient's condition changes, they should be assessed for the need for SUP. Looking at why they would recommend stress ulcer prophylaxis (SUP), 88 participants (91.7%) indicated that they would recommend it because they think stress ulcer prophylaxis effectively prevents GI bleeding. As revealed in another study by Levenstein et al., the rate of inappropriate stress ulcer prophylaxis was reduced relative to program implementation by 58.3% and 83.5% after following the SUP guidelines, with a significance level of P <.001 [12]. In the pre-and post-implementation groups, the rates of ICU patients who were wrongly discharged from the hospital without receiving stress ulcer prophylaxis were 29.9% and 3.6%, respectively (P <.001). In comparison, the rates of general ward patients decreased significantly from 36.2% to 5.4% in the same groups (P <.001) [13].
Additionally, the findings reveal that most of the participants, 79 (82.3%), indicated that if they began acid suppression therapy in the hospital, they would continue it after being discharged. Moreover, Omeprazole 53 (55.2%) and esomeprazole 30 (31.3%) were the most frequently selected medications for prescriptions. According to a study by Minushkin et al., esomeprazole is better than omeprazole in terms of how much stomach secretion is suppressed and how quickly the effect starts. The disparities could result from varying medication dosages (40 mg and 20 mg, respectively) [14].
Moreover, the study found that patients on NSAIDs (including aspirin) or corticosteroids who are aged 65 years or older 68 (70.8%), patients on mechanical ventilation for greater than 48 hours 64 (66.7%), and patients with a history of GI ulceration or GI bleeding within the previous year 60 (62.5%) were the most commonly reported indicators of stress ulcer prophylaxis (SUP). In line with a study by Buendgens and his friends, the most common risk factors of stress ulcer prophylaxis (SUP) were noted to be coagulopathy (OR = 4.3; P < 0.001) and mechanical ventilation (OR = 15.6; P < 0.001). Other risk factors included patients with burns, severe head trauma, prolonged surgeries (> 4 hours), acute kidney or hepatic failure, sepsis, hypotension, a history of gastrointestinal bleeding, high-dose corticosteroids, and advanced age [15]. Overall, other studies have shown that PPIs are at least as good at raising stomach PH as histamine H2-receptor antagonists; however, more adequately powered studies are required to examine the endpoint of clinically significant bleeding [16].
The study revealed that there was a statistically significant difference in knowledge of stress ulcer prophylaxis (SUP) among the male and female genders (P<0.05). As noted in another study, the association between knowledge of stress and ulcer guidelines among professionals in teaching hospitals was not statistically significant. However, there was a statistically significant difference in understanding stress ulcer prophylaxis (SUP) guidelines used in non-teaching hospitals across the genders [17].
The study's limitations include that its results could not be extrapolated to other institutions because it was conducted at a single hospital. Another potential limitation is that some of these patients may have had a suitable indication not noted in the medical record. Therefore, we advise interpreting this finding cautiously.

Conclusion

Medical school was the primary source of information about stress ulcer prophylaxis (SUP). The most widely used preventive measure was a proton pump inhibitor. The study also noted that most of the patients would continue it after they were discharged if acid suppression therapy was started in the hospital. Omeprazole and esomeprazole were the most frequently prescribed medications. Finally, the most common indications for SUP were patients who had been on mechanical ventilation for more than 48 hours, patients on NSAIDs who were 65 or older, and those who had experienced GI ulcers or bleeding within the previous year. According to the study, medical professionals require more training and awareness about SUP guidelines and appropriate prescribing practices.

Limitations: The cross-sectional design, which limits causal inference and the potential for response bias in self-reported data, must be acknowledged. Additionally, the study was conducted at a single hospital in Bisha City, Saudi Arabia, which may limit the generalizability of the findings to other settings.
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Table 1: Socio-demographic Characteristics of the participants (N=96)

Variables	**Characteristics**	**N (%)**
Age	34.87 ± 10.57	
Gender	Male	76 (79.2)
	Female	20 (20.8)
Medical school attended	International	34 (35.4)
	KSA	62 (64.6)
Position in the medical team	Consultant	22 (22.9)
	practitioner	27 (28.1)
	Residence	28 (29.2)
	Specialist	19 (19.8)
Length of service as a consultant	6.76 ± 5.93	

Table 2: Clinical Characteristics of the Participants (N=96)

Variables	Characteristics	N (%)
Source of information about stress peptic ulcer prophylaxis	Medical school	78 (81.3)
	Intensive Care Unit (ICU) rotation	16 (16.7)
	Reading Journals	14 (14.6)
	Personal experience	20 (20.8)
	Resident physicians	15 (15.7)
	Attending physicians	12 (12.5)
	Drug company representatives	2 (2.1)
	Formal education (CME/lectures/grand rounds)	12 (12.5)
	Gastrointestinal (GI) elective	6 (6.3)
	Quality improvement initiative	1 (1.0)
Indicate whether you prescribe stress ulcer prophylaxis according to stress ulcer prophylaxis (SUP) protocol for ICU and non-ICU adult patients' guidelines	Yes	53 (55.2)
	No	43 (44.8)
Indicate the one you would choose most often stress ulcer prophylaxis	Proton pump inhibitors	83 (86.5)
	H2 antagonists	5 (5.2)
	Anticholinergics	5 (5.2)

	Misoprostol	2 (2.1)
	Others (early enteral feed)	1 (1.0)
Indicate when should the patients be evaluated for the need of stress ulcer prophylaxis (SUP)	On a change patient's condition	69 (71.9)
	Upon discharge from the hospital	35 (36.5)
	Upon transfer to a different level of care	28 (29.2)
	When tolerating enteral feeding	21 (21.9)
Indicate what makes you prescribe stress ulcer prophylaxis (SUP)	I am afraid of the legal repercussions if I do not prescribe stress ulcer prophylaxis	19 (19.8)
	I think stress ulcer prophylaxis is effective in preventing GI bleeding.	88 (91.7)
	Others (Avoid trouble with relatives)	1 (1.0)
If you started acid suppression therapy in the hospital, would you continue it at discharge	Yes	79 (82.3)
	No	17 (17.7)
If you continue acid suppression therapy when you discharge the patient, which medication would you prescribe	Esomeprazole	30 (31.3)
	Omeprazole	53 (55.2)
	Ranitidine	4 (4.2)
	Pantoprazole	7 (7.3)
	Others (PPI and what hospital provides)	2 (2.0)
Indication of stress ulcer prophylaxis (SUP)	Patients on mechanical ventilation for greater than 48 hours	64 (66.7)
	History of GI ulceration or GI bleeding within the past year	60 (62.5)
	Traumatic brain injury, traumatic spinal cord injury	41 (42.7)
	Burns of more than 35% of body surface area	46 (47.9)
	Chronic liver disease	34 (35.4)
	Patient on NSAIDs (including aspirin) or corticosteroids who is aged 65 years or older	68 (70.8%)

Table 3: Association between Demographic Characteristics and Peptic Ulcer Disease Prevention (SUP) Use.

Variables	**Category**	**Yes=53 (%)**	**No= 43 (%)**	**Lower (95% CI)**	**Upper (95% CI)**	**P-values***
Age	34.94 ± 10.63		34.79 ± 10.44	.881	1.737	0.219
Gender	Male	38 (50.0%)	38 (50.0%)	-	-	
	Female	15 (75.0%)	5 (25.0%)	0.007	0.831	0.035

Medical school attended	International	22 (64.7%)	12 (35.3%)	0.291	330. 99	0.203
	KSA	31 (50.0%)	31 (50.0%)	-	-	
Position in the medical team	Consultant	16 (72.7%)	6 (27.3%)	0.049	3.535	0.421
	practitioner	14 (51.9%)	13 (48.1%)	.018	2.416	0.210
	Residence	14 (50.0%)	14 (50.0%)	0.039	3.437	0.380
	Specialist	9 (47.4%)	10 (52.6%)	-	-	-
Length of service as a consultant	6.82 ± 5.95		6.71 ± 5.85	0.535	1.603	0.783

*A P-value less than 0.05 was considered statistically significant.

Table 3: Qualitative data analysis ad interpretation

Theme	**Code**	**Result**	**Interpretation**
Awareness of SPUD	Recognition of Symptoms	Most physicians could identify symptoms of SPUD.	Physicians demonstrate a basic understanding of SPUD symptoms.
	Knowledge of Risk Factors	Physicians recognize stress, NSAIDs, and H. pylori as risk factors.	Physicians are aware of key risk factors associated with SPUD.
Prevention Strategies	Medication Usage	Many physicians prescribe PPIs for SPUD prevention.	PPIs are commonly utilized by physicians for SPUD prevention.
	Lifestyle Modifications	Few physicians recommend dietary changes or stress management techniques.	Awareness of lifestyle modifications for SPUD prevention is limited among physicians.
Knowledge Gaps	Limited Awareness	Some physicians lack knowledge about SPUD prevention.	There is a need for further education on SPUD prevention among physicians.
	Misconceptions	A few physicians hold misconceptions about effective preventive measures.	Misconceptions exist regarding SPUD prevention strategies among some physicians.
	Inconsistent Practices	Practices for SPUD prevention vary among physicians.	There is variability in approaches to SPUD prevention among physicians.

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Appendix: Questionnaire

Biodata
1. Age

2. Sex: - Female - Male
3. Where did you attend medical school?(do we need to remove it?) - KSA - International graduate
4. Your medical hierarchy: - GP - Resident - Specialist - Consultant
5. if you finished your residency years, how long has it been?
6. What is your specialty?
7. I have learned about stress peptic ulcer prophylaxis: (check all the apply) - Medical school - Intensive Care Unit (ICU) rotation - Reading Journals - Personal experience - Resident physicians - Attending physicians - Drug company representatives - Formal education (CME/lectures/grand rounds) - Gastrointestinal (GI) elective - Quality improvement initiative
8. Do you prescribe stress ulcer prophylaxis according to stress ulcer prophylaxis (SUP) protocol for ICU and non-ICU adult patients' guidelines? - Yes - No
9. Which one of the following would you choose most often stress ulcer prophylaxis? - Proton pump inhibitors - H2 antagonists - Anticholinergics - Misoprostol - Others
10. Patients should be evaluated for the need of stress ulcer prophylaxis (SUP) (you can choose more than one answer): - On a change patient's condition. - Upon discharge from the hospital. - Upon transfer to a different level of care. - When tolerating enteral feeding.
11. What makes you prescribe stress ulcer prophylaxis (SUP)? - I am afraid of the legal repercussions if I do not prescribe stress ulcer prophylaxis - I think stress ulcer prophylaxis is effective in preventing GI bleeding - Others…

12. If you started acid suppression therapy in the hospital, would you continue it at discharge?
- Yes
- No

13. If you continue acid suppression therapy when you discharge the patient, which medication would you prescribe?
- Esomeprazole
- Omeprazole
- Ranitidine
- Pantopeazole
- Others

14. Indication of stress ulcer prophylaxis (SUP) (you can choose more than one answer):
- Patients on mechanical ventilation for greater than 48 hours.
- History of GI ulceration or GI bleeding within the past year[8].
- Traumatic brain injury, traumatic spinal cord injury[3].
- Burns of more than 35% of body surface area[3].
- Chronic liver disease
- Patient on NSAIDs (including aspirin) or corticosteroids who is aged 65 years or older.