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PANTOPRAZOLE PLUS AZITHROMYCIN AND METRONIDAZOLE FOR CURE OF *HELICOBACTER PYLORI* INFECTION. G. Willkomm, Munich; B. Birkner, Munich; R. Fink, Freising; R. Kunze, Munich; M. Saitner, Weißenburg and W. Schepp, Munich, Germany

AIM: Azithromycin is a new macrolide antibiotic with a potential of a three days short-term treatment in several indications. For eradication of helicobacter pylori (H. pylori) the drug is not yet established. Therefore the present study aimed to determine whether azithromycin 250 mg bid for the three initial days of therapy can replace clarithromycin in a 7 days triple therapy regimen consisting of pantoprazole, azithromycin and metronidazole.
Methods: 72 out-patients (44 males, 28 females; median age 54 years) with an active duodenal ulcer were recruited for this open study. 63 patients were H. pylori positive. Patients were treated for seven days with pantoprazole 40 mg bid and metronidazole 500 mg bid. Additionally the patients received azithromycin 250 mg bid during the first three days. H. pylori status was ascertained on entry using rapid urease test and ^{13}C-UBT. H. pylori cure was assessed 4 weeks after therapy with ^{13}C-UBT.
Results: 58 patients were evaluable for successful eradication. Two patients were lost to follow-up, three discontinued the study prematurely due to adverse events. H. pylori infection was successfully cured in 43/58 of patients, equivalent to 74% (95% CI 61-85%). The mean intensitiy of gastrointestinal symptoms (ulcer pain, feeling of sickness, nausea and acid eructation) decreased during the study. 15 patients (21%) reported adverse events. The most frequent adverse events were diarrhoea, vomiting and nausea. None of the adverse events leading to premature withdrawal of three patients were likely or definitely related to pantoprazole with the exception of headache in one patient (likely related to pantoprazole and the antibiotics). No serious adverse events occured.
Conclusion: A three days treatment with azithromycin in combination with seven days of pantoprazole and metronidazole is less effective than standard triple therapy including clarithromycin. Duration of azithromycin treatment should be increased to 6 or 7 days since the same combination with seven days of clarithromycin instead of azithromycin has been shown to be highly effective (eradication rate 96%, Frevel et al., Gastroenterology 112, Suppl. 1997, A119b).
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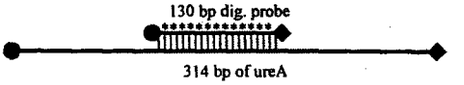
ESOPHAGITIS AND BILE REFLUX IN MECHANICALLY VENTILATED PATIENTS. A. Wilmer, J. Tack*, E. Frans, H. Bobbaers. Medical Intensive Care Unit, Dept. of Gastroenterology*, UZ Gasthuisberg, Catholic University of Leuven, Belgium.

Esophagitis has been reported to be the most frequent cause of upper gastrointestinal bleeding in mechanically ventilated (MV) patients. Previous studies using scintigraphy documented a high incidence (61%) of gastroesophageal reflux in these patients. It is unclear whether the cause of the esophagitis in these patients is due to the presence of the nasogastric tube or if reflux could also have a pathophysiological role. The aim of this study was to assess over a prolonged period of time the incidence and type (bile or acid) of reflux, and the potential relationship between pathological reflux and esophagitis in MV patients. Methods: 24 critically ill, MV patients (mean APACHE II score 21, mean age 64 ± 14 yrs, 15 men), hospitalized in a medical intensive care unit, were prospectively included for 24-hour esophageal pH and duodeno-gastroesophageal reflux (DGER) monitoring (Digitrapper III pH-meter and Bilitec 2000, Synectics, Sweden) with single sensors placed 5 cm proximal to the lower esophageal sphincter (LES) and instrumented with a nasogastric tube. All patients received stress ulcer prophylaxis with ranitidine 50 mg iv, tid. On the day before the study patients underwent esophageal endoscopy to determine the presence or absence of esophagitis. During the study, patients were placed in supine semi-recumbent position and turned on either left or right lateral sides at intervals as deemed appropriate by the attending nurse. The following variables were analyzed: % time pH < 4 (normal: < 3,4%) or % time bilirubin absorption > 0.14 (normal: < 3%), total duration of reflux, and number of reflux episodes. Data are medians with interquartile ranges (IQR). Fisher's exact test was used to anlayze relationships between the presence or absence of pathological reflux and esophagitis. Results: After a median of 4 days of MV (IQR 3,8) 7 patients had no DGER, 5 patients had DGER within normal ranges, and 12 of 24 patients (50%) patients had pathological DGER. The median % DGER time over the whole recording time in these 12 patients was 61% (IQR 47,83%). In contrast, only 2 patients had significant acid reflux (4.8% and 9.9% of the time) and the median pH in the lower esophagus for all 24 patients was 6.7 (IQR 6,7). In the 12 patients with pathological DGER, the median duration where bilirubin was present in the lower esophagus was 14.4 h (IQR 11,18 h), and the median number of DGER episodes was 37 (IQR 14,115). Of the 24 patients 12 (50%) had esophagitis and 9 of these 12 also had pathological DGER. In 10 of the 12 patients the area of mucosal irritation was located within 4 cm above the LES. There was a significant positive relationship between the presence of pathological DGER and the presence of esophagitis (p=0.039). Conclusions: Under standard stress ulcer prophylaxis with ranitidine, critically ill patients with MV have a high incidence (50%) of DGER but not of acidic esophageal reflux. The presence of bile salts in the esophagus for prolonged periods of time suggest that the barrier function of the LES and the clearance function of the esophagus are deranged. Esophagitis in these patients may not only be a result of mechanical irritation due to the nasogastric tube, but may also be a chemical esophagitis related to DGER. This is the first study that demonstrates the ability of DGER to cause esophageal lesions in man, in the absence of acid exposure.

● G1357

TRANSPORT OF GASTRIC MUCUS ON DRY COTTON SWABS DOES NOT AFFECT PCR DETECTION OF *H. PYLORI*. H. M. Windsor, G.Y. Ho, B. H. Laurence*, D.J.E. Cullen*, G.C. MacQuillan*, B.J. Marshall, Departments of Medicine and Gastroenterology*, University of Western Australia and Sir Charles Gairdner Hospital, Perth, Australia.

Introduction: *H. pylori* is slow to culture and transportation of biopsies to laboratories is usually inconvenient. Simple, reliable methods of transport are required now that molecular methods of study are becoming more widely used.
Aims: To determine the accuracy of a DNA probe for detecting *H. pylori* in gastric mucus. To determine the shelf life of such samples when transported on dry cotton swabs.
Methods: During routine endoscopy, 30 consecutive patients underwent CLOtest and histological examination of antral mucosa. Patients were HP-pos if both tests were positive, or HP-neg if all tests were negative. After biopsy, antral mucosa was wiped with a cytology brush and then transferred to two cotton swabs. Paired swabs were sent to the laboratory within 36 hours where one swab was kept at -85°C (control) while the other was stored at 37°C for 7-14 days. Four patients had extra swabs kept at 4°C and 23°C for 14 and 21 days. *H. pylori* was detected by extracting DNA from the swabs and amplifying a 314 bp segment of the urease A gene using the Kawamata primers (Biochem. Biophys. Res. Comm. 1996). After amplification, DNA was spotted onto a nylon membrane and hybridized with a digoxigenin labeled 130bp probe which detects a sequence internal to the 314 bp amplicon.



Results: Mucus swabs were collected from 27 patients (12 HP-pos, 11 HP-neg, 4 excluded). There were no false positive PCR results but there was one false negative PCR (ppv=100%, npv=92%). Importantly, all swabs which were HP-pos when stored at -85°C remained HP-pos at all subsequent temperatures and time periods:

N	Histology & CLO test	Control -85° C	7 d 37° C	14 d 37° C	21d 37° C	21 d 4° C	21 d 23° C
12	HP-pos	++	++	++	++	++	++

Conclusions: Gastric mucus can be sampled on dry cotton swabs for *H. pylori* DNA analysis. Shelf life of these samples is at least 21 days. The molecular epidemiology of *H. pylori* can easily be studied using mucus samples collected onto cotton swabs and sent through the mail.

● G1358

SELECTION OF *H. PYLORI* LEWIS EXPRESSION IS DEPENDENT ON HOST LEWIS PHENOTYPE IN RHESUS MONKEYS. H.P. Wirth[1,2], M. Yang[1,2], A. Dubois[3], D.E. Berg[4], M.J. Blaser[2]. [1]University Hospital Zürich, Switzerland; [2]Vanderbilt University School of Medicine and VA Medical Center, Nashville, TN; [3]Uniformed Services University of the Health Sciences, Bethesda, MD; [4]Washington University, St. Louis, MO, USA.

Lewis (Le) type 2 antigen expression of *H. pylori* isolates is related to the host Le phenotype in humans, suggesting the selection of bacterial populations that are host-adapted (Wirth et al. Gastroenterology 1997;113:1091-98). The aim of the present study was to examine whether in experimental *H. pylori* infection of rhesus monkeys, there is evidence that the host Le phenotype selects for particular bacterial Le phenotypes.
Materials and Methods. Four rhesus monkeys (A to D) were cured of natural *H. pylori* colonization 6 months prior inoculation of a mixture of 7 human *H. pylori* isolates (Dubois et al. 1996). The monkeys underwent endoscopy at weeks 1, 8, 14, and 40 after inoculation, and single colonies (SC) were picked from the primary culture plates, expanded and examined by RAPD-PCR and for Le expression by ELISA (expressed as ODU [optical density at 410nm x 1000]). RAPD-PCR of the 7 inoculated *H. pylori* strains gave clearly distinguishable patterns. The Le(a/b) phenotype of the monkeys was determined from saliva by hemagglutination inhibition using monoclonal antibodies to Le^a or Le^b.
Results. After experimental inoculation, all 4 monkeys remained colonized for up to 40 weeks. After 1 week, all 4 animals harbored 2 to 4 different *H. pylori* strains (J166, J170, J238, J258), after 14 weeks just 2 strains (J166, J170) could be isolated. After 40 weeks, 3 monkeys carried a single strain (J166) whereas the fourth animal still had 2 strains (J166, J238), as determined by RAPD-PCR. Whereas SCs of individual *H. pylori* strains recovered after 1 to 14 weeks showed diverse Le expression, patterns of Le expression of *H. pylori* SCs from a given monkey were similar after 40 weeks of infection. Importantly, despite the dominance of the same single strain (J166), the pattern of bacterial Le expression clearly became different in monkeys of different Le phenotype. Thus, *H. pylori* isolates from monkeys A and B (Le(a+b-) phenotype) at 40 weeks had mean Le^x/Le^y expressions of 2065 ± 225/212 ± 24 ODU and 1533 ± 529/147 ± 73 ODU. In contrast, those from monkeys C and D (Le(a-b+) phenotype) expressed Le^x/Le^y of 337 ± 42/2573 ± 170 ODU and 168 ± 72/1955 ± 365 ODU, respectively.