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Medical Sciences

THE SEQUENTIAL TREATMENT FOR HELICOBACTER PYLORI ERADICATION AS A FIRST-LINE THERAPY IN TYPE 2 DIABETIC PATIENTS

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ABSTRACT:
HELICOBACTER PYLORI (HP) IS A GRAM NEGATIVE BACTERIUM FOUND IN THE STOMACH AND DETERMINED CHRONIC GASTRITIS, PEPTIC ULCERS AND GASTRIC CANCER. IN PATIENTS WITH DIABETUS MELLITUS THE FREQUENCY OF HELICOBACTER PYLORI INFECTION WAS HIGHER COMPARATIV WITH NONDIABETICS. HELICOBACTER PYLORI INFECTION MAY INCREASE THE LEVEL OF GLYCOSYLATED HEMOGLOBIN IN DIABETIC PATIENTS.THE LEVELS OF GLICEMIA WAS CONTROLLED BY INSULIN OR ORAL HYPOGLICEMIC AGENTS WHILE THE DRUGS USED FOR ERADICATION OF HP INFECTION ARE PROTON PUMP INHIBITORS, BISMUTH COMPOUNDS, METRONIDAZOLE, CLARITHROMYCIN, AMOXICILIN AND TETRACYCLINE.

KEY WORDS: HELICOBACTER PYLORI, DIABETUS MELLITUS

INTRODUCTION

Helicobacter pylori infection are very common worldwide affecting aproximately 50% of the worlds population[6]. Helicobacter pylori is a gram negative bacterium, about 3

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[6] Pounder, R. E. and D. Ng, *"The prevalence of Helicobacter pylori infection in different countries"*, Alimentary Pharmacology & Therapeutics, vol. 9, supplement 2, pp. 33–39, 1995.

micrometers long that colonisez the stomach and causes chronic gastritis, peptic ulcers, gastric and duodenal ulcers, gastric cancer and mucosa-associated lymphoid tissue (MALT lymphoma). This infection was associated with various extragastric diseases such as cardiovascular disease, dementia, insulin resistance and diabetes mellitus.

There are many noninvasive tests for evidence Helicobacter pylori infectios such as blood antibody tests, stool antigen tests or carbon urea breath test (UBT). Endoscopic biopsy combined with rapid urease test evidence infection population[7].

HP infection is more frequently in patients with diabetes mellitus and plays an important role in the occurrence of gastrointestinal manifestations. Most patients are asymptomatic but some patients may have abdominal pain, nausea, vomiting and heartburn.

HP infection causes gastrointestinal inflammation and this inflammation can influence glucose and lipids absorption[8]. In patients with diabetes mellitus, the decrease of cellular and humoral immunity favors the increase of the incidence of Helicobacter pylori infection. Changes in glucose metabolism may alter chemical production in the gastric mucosa, which results in colonization of more bacteria[9].

The long duration of the diabetus mellitus is the main risk factors for increasing the risk of chronic complications such as autonomic neuropathy and gastropathy that are critical predictors for HP infection in diabetics.

The standard first line therapy for eradication Helicobacter pylori infections is triple therapy consist of proton pump inhibitors such as omeprazol and the antibiotics: clarithromycin and amoxicillin or metronidazole. Another options of treatment was sequential treatment which includes a five day period with PPI and amoxicillin 1g (both twice daily) followed by a triple therapy including PPI, clarithromycin 500 mg and tinidazole for another five day period (twice daily).

OBJECTIVES

The aim was to assess of the efficacy and safety of sequential therapy for HP eradication as a first-line therapy.

METHODS

This multi-annual retrospective study was performed on 88 patients with HP infection.

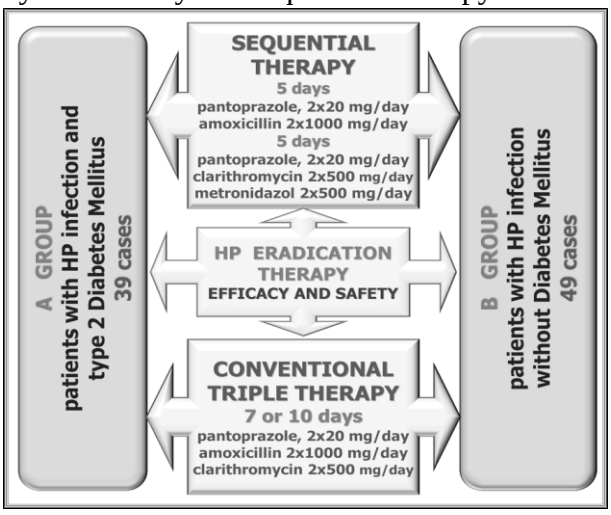

Fig. 1. The algoritm of the comparative assesment of the efficacy of therapy

The A group was consist of 39 patients with type 2 diabetes mellitus (the disease history was longer than 3 years) and

[7] Stenström B, Mendis A, Marshall B *(August 2008). "Helicobacter pylori – The latest in diagnosis and treatment". Australian Family Physician. 37 (8): 608–612.*

[8] Chen Y, Blaser M., *Association between Gastric Helicobacter pylori colonization and glycated hemoglobin levels.* Journal of Infectious Disease, 2012; 205:1195–2029

[9] de Luis DA, de la Calle H, Roy G, de Argila CM, Valdezate S, Canton R, et al. "*Helicobacter pylori infection and insulin-dependent diabetes mellitus",* Diabetes Research and Clinical Practice, 1998; 39:143–6

B group contained 49 nondiabetic patients. The first-line therapy for HP eradication was: conventional triple therapy (10 days of pantoprazole, 2x20 mg/day, amoxicillin 2x1000 mg/day and clarithromycin 2x500 mg/day) in 57 cases and sequential therapy (5 days of pantoprazole and amoxicillin followed by 5 days of pantoprazole, clarithromycin and metronidazole) in 31 cases. The history and duration of HP eradication (eradication rate, drug compliance and side effects) was quantified and compared. We monitored evolution of glycosylated hemoglobin (HbA1c) values and BMI during the treatment and one year after HP eradication.

RESULTS

The therapeutic option for the sequential treatment for HP eradication was present in both groups: 18 cases (46.16%) in patients with type 2 diabetes mellitus and 25 cases (51.02%) in nondiabetic patients.

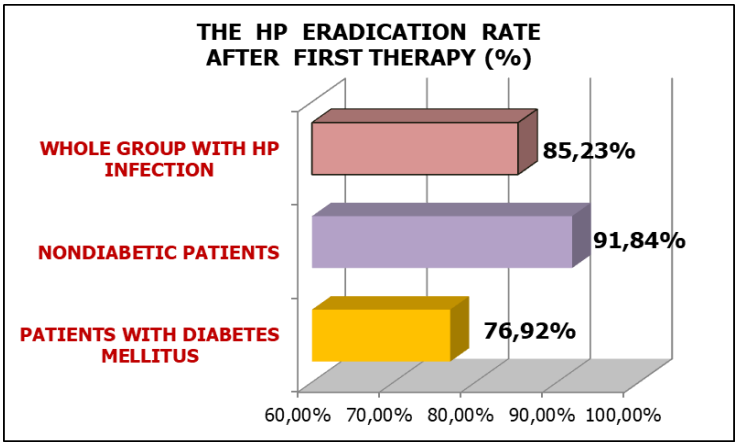

Fig. 2. The HP eradication rate after first therapy comparatively in patients with Diabetes mellitus

The eradication rate was lower in patients with type 2 diabetes mellitus (76.93%, 30 cases) comparative with nondiabetic patients (91.84%, 45 cases). In patients with type 2 diabetes the sequential therapy was more effective than conventional triple therapy: eradication rate was 83.34%, (15 cases) after sequential therapy and 71.43% after standard therapy.

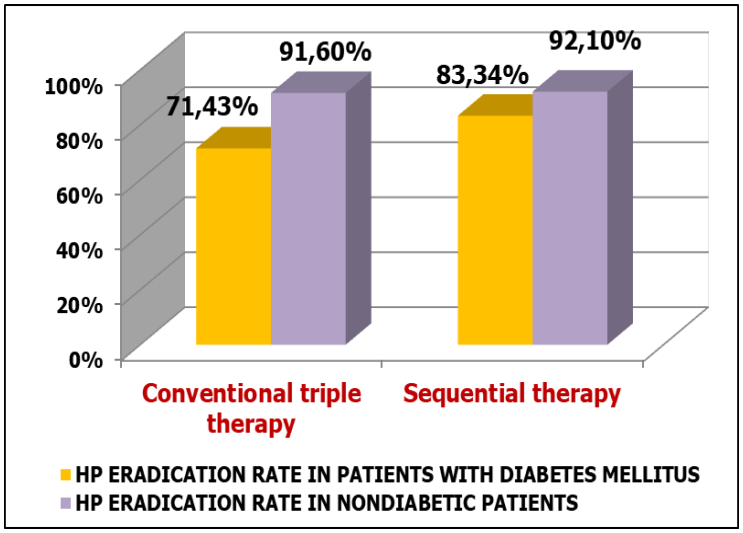

Fig. 3. The HP eradication rate comparative in sequential therapy vs conventional triple therapy

In nondiabetic patients the HP eradication rate was similar in both treatments: 91.6% in standard treatment versus 92.1% in sequential therapy.

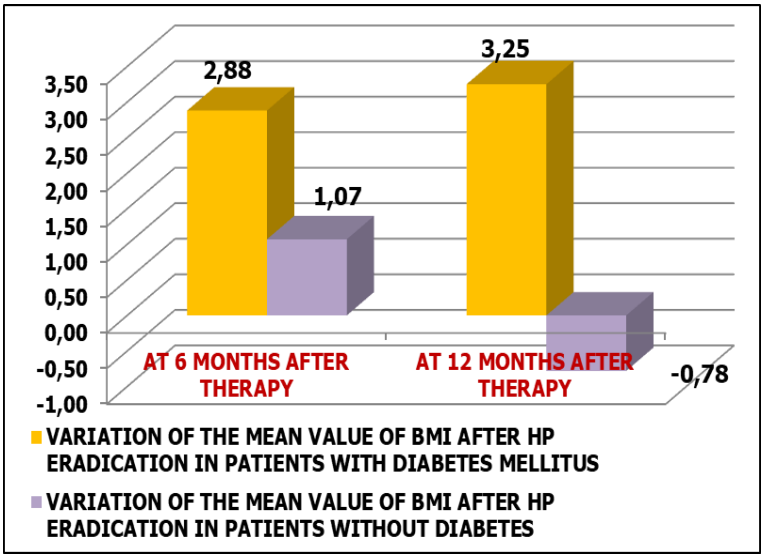

Fig. 4. The HP eradication rate at 6 and 12 months

We have not observed a significant variation of mean value of glycosylated hemoglobin (HbA1c) during or after HP eradication treatment. The monitoring of BMI show a significantly increased of mean value of BMI in diabetic patients at 6 months (22.8+3.2 kg/sqm versus 21.3+2.9 kg/sqm at baseline) and 12 months (23.9+3.8 kg/sqm) after HP eradication. The BMI increase was similar in both therapeutic strategies. In the B group the variation of the BMI average was not significant. The incidences of adverse effects during the treatment was reduced in both groups and consisted in: abdominal pain (5 cases), nausea and/or vomiting (6 cases), diarrhea (3 cases).

CONCLUSION

The sequential therapy for HP eradication was more effective and safe in patients with type 2 diabetes mellitus comparative with standard treatment. HP eradication was associated with increased of BMI in diabetic patients.

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All authors had the same contribution.

All authors report no potential of interest.

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