

Original Research Article

Advances in functional dyspepsia; traditional and beyond traditional

Abdullah M. Nasrat^{1*}, Ali Zain Abden Mohamed Al Shammari², Faisal Farid Alhamad²,
Zayed Mohammed Alnefaie³, Attar Razan Khalid M.⁴, Yousef Muflih Alsaedi²,
Nafesa Mohammed Alshammari², Ibrahim Sulaiman Aljohani²

¹Department of Surgery and Research, Zaitona Medical Center, Medina, Saudi Arabia

²College of Medicine, Al-Rayan Colleges, Al-Madinah Al-Munawwara, Saudi Arabia

³Department of Anatomy and Embryology, Al-Rayan Colleges, Al-Madinah Al-Munawwara, Saudi Arabia

⁴Department of Clinical Pharmacology AL Hada Military Hospital, Saudi Arabia

Received: 07 December 2024

Accepted: 21 December 2024

*Correspondence:

Dr. Abdullah M. Nasrat,

E-mail: abdullahalnasrat@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Functional dyspepsia is a clinical syndrome defined by chronic or recurrent pain, heart burn or discomfort in the upper abdomen of a variable origin. A general agreement exists on the irrelevant role played by *H. pylori* in the pathophysiology of most cases of functional dyspepsia. Diagnosis is based on the clinical picture and detection of *H. pylori*. Specific sensitive diagnostic tests are available but *H. pylori* serum antibodies, though non-specific, is suggested because of being cost effective as the matter of *H. pylori* dyspepsia is a typical subject of cost-effectiveness. The efficacy of antibiotic treatment for non-ulcer dyspepsia is controversial, different trails have given conflicting results. Antibiotic eradication treatment for non-ulcer dyspepsia symptoms had no significant effect on quality of life compared with placebo and was found costlier if compared to antacid treatment.

Methods: A group of 32 males and females, children and adults with clinical symptoms of epigastric discomfort, hyperacidity and indigestion with or without distension were randomly included in study between October, 2023 and October, 2024. Their age ranged between 13-54 years; they were investigated for existence of *H. pylori*. Colon care and colon clear for natural eradications of *H. pylori* employed for them. They give natural probiotic supplements (acid butter milk) for 10 days in order to improve dyspeptic symptoms and they were followed up for 6-8 months.

Results: Marked clinical improvement and disappearance of most epigastric discomfort and dyspeptic symptoms.

Conclusions: *H. pylori* seems to be lately a major reason behind many cases of functional dyspepsia.

Keywords: Colon care, Colon clear, Functional dyspepsia, *H. pylori*, Probiotics

INTRODUCTION

Functional dyspepsia is a clinical syndrome defined by chronic, recurrent pain or discomfort in the upper abdomen of a variable origin. A general agreement exists on the irrelevant role played by *H. pylori* in the pathophysiology of most cases of functional dyspepsia.¹ Diagnosis of functional dyspepsia is based on the clinical symptoms and detection of *H. pylori* serum antibodies. The following clinical symptoms of functional dyspepsia

are considered; upper gastrointestinal pain, burping, gastric distension, halitosis, hyperacidity and acid reflux. Specific sensitive diagnostic tests such as urea breath and *H. pylori* fecal antigen tests are available; *H. pylori* serum antibodies, though non-specific, is suggested as screening test because of being cost effective as the matter of *H. pylori* dyspepsia is a typical subject of cost-effectiveness.^{2,3}

Functional dyspepsia with or without reflux disease has been demonstrated lately to widely spread beyond

medical limits and rules in both sexes among different age groups and social classes to the extent that it was found prevalent even among children.^{2,4,5} It is necessary to effectively deal with *H. pylori* dyspepsia due to its associated discomfort and risk with many reasons of chronic illness through inflammatory, toxic, immune or other different reasons.²

The efficacy of antibiotic treatment for non-ulcer dyspepsia is controversial, different trails have given conflicting results. Overall, antibiotic eradication treatment for non-ulcer dyspepsia symptoms had no significant effect on quality of life compared with placebo and was found more costly if compared to antacid treatment.^{6,7} Bio-organic acids; lactic, formic and acetic have been lately proved effective in symptomatic and clinical cure of dyspepsia.^{4,8}

Eradication of clinical symptoms of *H. pylori* dyspepsia could be considered a clinical cure; patients who are rendered asymptomatic after treatment do not need further investigation or treatment; they can just return for re-assessment if they develop further symptoms.

Evaluation of eradication after *H. pylori* treatment markedly increases cost with no clear improvement in results.⁸

Aim

Demonstration of different traditional and non-traditional etiologic reasons behind the frank phenomena of increasing symptoms of functional during latest decades.

METHODS

A prospective study carried out in Medina, Saudi Arabia between October 2023 and October 2024. An equal groups of 32 males and females, children and adults with clinical symptoms of epigastric discomfort, hyperacidity, indigestion and abdominal distension with or without reflux symptoms were randomly included in the study. The age of children ranged between 13-18 years while the adults between 39 and 54 years, they were screened for existence of *H. pylori* which was further confirmed by specific tests; urea breath test and *H. pylori* fecal antigen (Table 1).² Colon care and colon clear for natural eradications of *H. pylori* were employed for them in the form of vinegar therapy and the potent natural senna leaves extract purge. Vinegar therapy consisted of vinegar-mixed salad among principal meals, once or twice daily for 3-5 days/week.⁹ They were given natural probiotic supplements (acid butter milk) for 10 days in order to improve dyspeptic symptoms and they were followed up for 8-10 months after colon clear.

Table 1: Specific tests; urea breath test and *H. pylori* fecal antigen test.

S. no.	Gender (M=male, F=female)	Age (13-18 child, 39-54 adult) (in years)	<i>H. pylori</i> fecal antigen (P=positive, N=negative)	<i>H. pylori</i> urea breath (P=positive, N=negative)
1	M	13	P	N
2	M	15	P	N
3	M	16	P	P
4	M	16	P	P
5	M	17	P	N
6	M	17	P	N
7	M	18	P	N
8	M	18	P	N
9	M	42	P	N
10	M	46	N	P
11	M	48	P	P
12	M	50	P	P
13	M	52	P	N
14	M	53	P	N
15	M	54	P	N
16	M	54	P	N
17	F	14	P	N
18	F	14	P	N
19	F	14	P	P
20	F	15	P	N
21	F	15	P	N
22	F	16	P	N
23	F	17	P	N
24	F	18	P	N
25	F	18	P	N
26	F	39	P	N
27	F	40	N	P

Continued.

N	Gender (M=male, F=female)	Age (13-18 child, 39-54 adult) (in years)	<i>H. pylori</i> fecal antigen (P=positive, N=negative)	<i>H. pylori</i> urea breath (P=positive, N=negative)
28	F	44	N	P
29	F	48	P	N
30	F	49	P	N
31	F	50	P	N
32	F	50	P	N

The statistical tool and method used in this study was descriptive statistics by SPSS to summarize the distributions of gender, age groups, and test outcomes through counts and percentages.

RESULTS

H. pylori fecal antigen test was proved positive in 90% of patients; 17 children and 12 adults. Urea breath test was positive in 25% of patients; 3 children and 5 adults (Figures 1-3). Dyspeptic and heart burn symptoms disappeared in all patients after the probiotic supplement, colon care and colon clear.

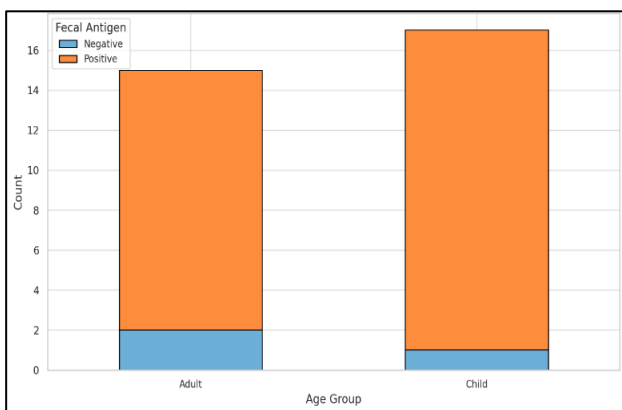


Figure 1: *H. pylori* fecal antigen results by age group. Majority of both children and adults tested positive for the fecal antigen test and negative results are minimal in both groups.

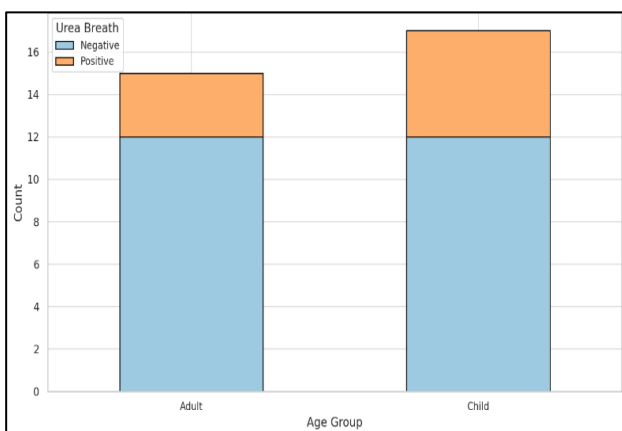


Figure 2: *H. pylori* urea breath results by age group. A larger proportion of adults tested negative for urea breath test compared to children. Positive results are relatively rare in both age groups.

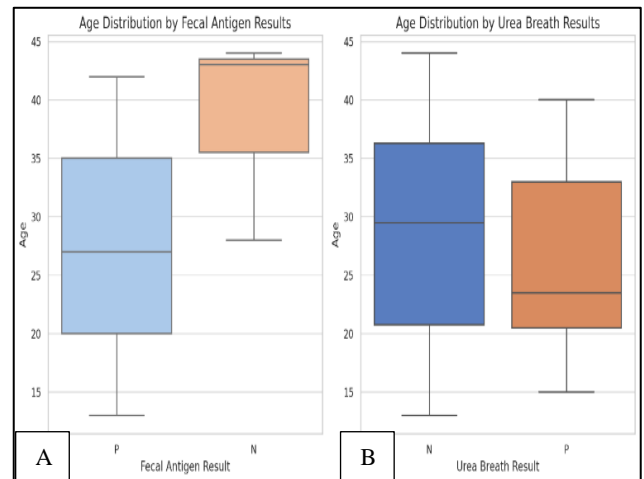


Figure 3 (A and B): Age distribution by fecal antigen results and urea breath results.

The box plots above illustrate the age distribution for different test results: Fecal antigen results: Both positive and negative results are spread across a similar age range, with no significant outliers. Urea breath results: Positive results are slightly more concentrated among younger participants compared to negative results.

DISCUSSION

It was noticed during inclusion of patients in the study that symptoms of functional dyspepsia constitute frank constant finding among population living in a developing country which further indicates the influence of lifestyle in food habits upon these dyspeptic symptoms.^{2,9}

According to the results of this study, *H. pylori* should be responsible for most symptoms of functional dyspepsia. However, it seems also that normal-behaviour *H. pylori* strains are not pathologic by their own unless associated by misbehaviour in food habits. A normal-behaviour *H. pylori* should not exist inside the gastric lumen during presence of food, it remains under the gastric mucus layer until travel of food from the stomach and drop of gastric acid to a residual level where it picks up its nutrition from remnants of food within the gastric lumen in a blink like momentum protected with a shield of ammonia around its immediate vicinity before it returns back to its natural habitat under the gastric mucus layer. Otherwise, and if the bacterium exists within the lumen during presence of food, there would be of course a vicious circle between ammonia of *H. pylori* and the gastric acid with consequent dilemma of heart burn inside the stomach.^{2,4,5,9}

Therefore; it could be rather clear why symptoms of functional dyspepsia constitute constant findings among developing population; that should be definitely due to the style of people's life and misbehaviour in food habits that excite *H. pylori* forcing it to change behavior.^{2,7,9}

As the use of antibiotics in children is more than in adults due to the frequent incidence of throat and upper respiratory troubles, therefore; migration of *H. pylori* to the colon could occur in children rather frequent and could be responsible for many gastro-intestinal troubles in children to the extent that an investigator has advised to stop fighting the stomach bacterium *H. pylori* as oesophageal reflux was not as such before development of the anti- *H. pylori* antibiotics.^{2,7,10} Hence; antibiotic use for children should be seriously restricted unless severely indicated.

Natural probiotics play an important role in human health by promoting nutrient supply, preventing pathogen colonization, shaping and maintaining normal mucosal immunity. Natural gut bacteria have been recently appreciated as having a true symbiotic relationship with the host; within this large pool of bacteria, probiotic supplements containing lactic acid-producing bacteria (LAPB) like *Lactobacilli* have been claimed to have some variety of beneficial effects on human health. LAPB also represent some of the most commonly used probiotic bacteria being extensively employed in food products generating large amounts of the healthy bio-organic lactic acid that helps to improve dyspeptic symptoms.¹¹⁻¹³

Bio-organic acids; lactic, formic and acetic acid, were lately recognised to control epigastric symptoms and discomfort developing due the abnormal behaviour of *H. pylori* via interference with the energy metabolism and respiratory chain metabolism of the bacterium.^{7,9,14-21} Colon care with vinegar-mixed food and colon clear with the natural senna leave purge extract constitute ideal natural and safe measures to control most symptoms caused by the abnormal-behaviour *H. pylori* strains.^{4,8,9,14,22,23}

Disappearance of symptoms of dyspepsia and hyperacidity was considered in this study as clinical cure with no need for further confirmation or investigation as *H. pylori* is a typical subject of cost-effectiveness and evaluation of eradication after *H. pylori* treatment markedly increases cost with no clear improvement in results.⁸

Limitations

No follow up for colonic assessment: The study lack for follow up evaluations, such as urea breath tests or fecal antigen.

Small sample size: The study has a limited sample (32 participants, aged 13-54) restrict it's generalizability to wider populations.

Absence of control group: The absence of a control group makes it hard to say if the intervention alone caused the improvements.

CONCLUSION

H. pylori has been lately constituting a frank reason of dyspepsia, as *H. pylori* is a typical subject of cost-effectiveness; hence disappearance of symptoms should be considered a clinical cure without any need for evaluation of eradication after *H. pylori* treatment.

ACKNOWLEDGEMENTS

Authors would like to thank to faculty of medicine, Al Rayan national college of medicine and Zaitona medical center in Medina, Saudi Arabia.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Stanghellini V, De Ponti F, De Giorgio R, Barbara G, Tosetti C, Corinaldesi R. New developments in the treatment of functional dyspepsia. *Drugs*. 2003;63(9):869-92.
2. Farinha P, Gascoyne RD. *Helicobacter pylori* and MALT Lymphoma. *Gastroenterology*. 2005;128(6):1579-605.
3. Garcia-Altes A, Jovell AJ, Serra-Part M, Aymerich M. Management of *Helicobacter pylori* in duodenal ulcer: a cost-effectiveness analysis. *Aliment Pharmacol Ther*. 2000;14(12):1631-8.
4. McColl K, Murray L, El-Omar E, Dickson A, El-Nujumi A, Wirz A, et al. Symptomatic benefit from eradicating of *Helicobacter pylori* infection in patients with nonulcer dyspepsia. *N Eng J Med*. 1998;339:1869-74.
5. Moayyedi P, Soo S, Deeks J, Forman D, Mason J, Innes M, et al. Systemic review and economic evaluation of *Helicobacter pylori* eradication treatment for non-ulcer dyspepsia. *Dyspepsia Review Goup. BMJ*. 2000;321(7262):659-64.
6. Midolo PD, Lambert JR, Hull R, Luo F, Grayson ML. *In vitro* inhibition of *Helicobacter pylori* NCTC 11637 by organic acids and lactic acid bacteria. *J Appl Bacteriol*. 1995;79(4):475-9.
7. Nasrat AM, Nasrat SAM, Nasrat RM, Nasrat MM. Misconception and misbehavior towards *Helicobacter pylori* is leading to major spread of illness. *General Med*. 2015;S1:2.
8. Phull PS, Halliday D, Price AB, Jacyna MR. Absence of dyspeptic symptoms as a test for *Helicobacter pylori* eradication. *BMJ*. 1996;312(7027):349-50.
9. Nasrat AM, Nasrat SAM, Nasrat RM, Nasrat MM. An alternate natural remedy for symptomatic relief of

- Helicobacter pylori* dyspepsia. Gen Med. 2015;3(4):10.
10. Nasrat AM, Nasrat RM, Nasrat MM. Stop fighting the stomach bacterium *Helicobacter pylori*; esophageal reflux was not as such before the anti-H. pylori antibiotics. Am J Med Med Sci. 2017;7(4):196-201.
 11. Sears CL. A dynamic partnership: Celebrating our gut flora. Anaerobe. 2005;11(5):247-51.
 12. O'Hara AM, Shanahan F. The gut flora as a forgotten organ. EMBO Rep. 2006;7(7):688-93.
 13. Flint HJ, O'Toole PW, Walker AW. The human intestinal microbiota. Microbiology. 2010;156(11):3203-4.
 14. Nasrat RM, Nasrat MM, Nasrat AM, Nasrat SAM. Improvement of idiopathic cardiomyopathy after colon clear. J Cardiol Res. 2015;6(2):249-54.
 15. Ge Z. Potential of fumarate reductase as a novel therapeutic target in *Helicobacter pylori* infection. Expert Opin Ther Targets 2002;6(2):135-46.
 16. Mendz GL, Hazell SL, Burns BP. Glucose utilization and lactate production by *Helicobacter pylori*. J Gen Microbiol. 1993;139(Pt 12):3023-8.
 17. Mendz GL, Hazell SL. Fumarate catabolism in *Helicobacter pylori*. Biochem Mol Biol Int. 1993;31(2):325-32
 18. Mendz GL, Hazell SL, van Gorkom L. Pyruvate metabolism in *Helicobacter pylori*. Arch Microbiol. 1994;162(3):187-92.
 19. Hughes NJ, Clayton CL, Chalk PA, Kelly DJ. *Helicobacter pylori* porCDAB oorDABC genes encode distinct pyruvate: flavodoxin and 2-oxoglutarate: acceptor oxidoreductases which mediate electron transport to NADP. J Bacteriol 1998;180(5):1119-28.
 20. Berg JM, Tymoczko JL, Stryer L. Biochemistry. WH Freeman and Company. 5th Ed: 2002;480.
 21. Mendz GL, Ball GE, Meek DJ. Pyruvate metabolism in *Campylobacter* spp. Biochim Biophys Acta. 1997;1334(2-3):291-302.
 22. Keskin D, Toroglu S. Studies on antimicrobial activities of solvent extracts of different species. J Environ Biol. 2011;32(2):251-6.
 23. Guarizel L, Costa JC, Dutra LB, Mendes RF, Lima IVA, Scio E. Anti-inflammatory, laxative and intestinal motility effects of *Senna macranthera* leaves. Nat Prod Res. 2012;26(4):331-43.

Cite this article as: Nasrat AM, Al Shammari AZAM, Alhamad FF, Alnefaie ZM, Khalid MAR, Alsaedi YM, et al. Advances in functional dyspepsia; traditional and beyond traditional. Int J Community Med Public Health 2025;12:32-6.