The treatment of *Helicobacter pylori* in chronic kidney disease patients

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**Abstract**

*Helicobacter pylori* is responsible for the development of gastrointestinal complications, especially stomach ulcer, duodenum and stomach inflammation and even stomach neoplasms. It also increases the risk of developing cardiovascular diseases. The diagnosis and the treatment of *Helicobacter pylori* is indispensable due to the increased risk of gastrointestinal hemorrhage and taking non-aggressive or less aggressive diagnostic measures and utilizing more short-term and lesser-dosage therapeutic protocols is also recommended.

**Keywords:** Chronic kidney disease, *Helicobacter pylori*, Gastrointestinal complications, Duodenum

**Introduction**

Gastrointestinal complications are some of the most serious concerns of chronic kidney disease (CKD) patients (1). In most cases, treating gastrointestinal complications are symptomatic, however treating and eliminating the cause is essential to prevent the outbreak of serious complications, especially the hemorrhagic complications (2). *Helicobacter pylori* is responsible for the development of gastrointestinal complications, especially stomach ulcer, duodenum and stomach inflammation and even stomach neoplasms. It also increases the risk of developing cardiovascular diseases (3).

**Materials and Methods**

For this mini-review, we used a diversity of sources by searching through PubMed/Medline, Scopus, EMBASE, EBSCO and directory of open access journals (DOAJ). The search was conducted, using combination of the following key words and or their equivalents; chronic kidney disease, *Helicobacter pylori*, gastrointestinal complication, duodenum. Titles and abstracts of articles were investigated of review article, clinical trials, cohort studies, case-control studies, and report that relevance to the intended topic.

*Helicobacter pylori* in CKD

The prevalence of *Helicobacter pylori* has been reported to be between 30% to 80% (4). The prevalence of *Helicobacter pylori* in CKD patients has been previously reported, but it is an important issue since it is vital to address even one of the many problems that CKD patients face (5,6). In some studies there has been suggested that there is a higher prevalence of *Helicobacter pylori* among patients suffering from chronic CKD, due to their high levels of urea. However some studies do not count a high level of urea as a risk factor for *Helicobacter pylori* infection (7-10). This is the reason why the infection severity of *Helicobacter pylori* in dialysis patients has still remained unclear. Every year there is a 7% increase in the number of patients in need for dialysis (10-14), this shows that more attention should be paid to the issues and problems of dialysis patients, and one of these problems is *Helicobacter pylori* infection (4-6).

Dialysis patients are always under different diagnostic and therapeutic measures, which are sometimes aggressive, due to the nature of their disease. There has been many methods devised to diagnosis and treat *Helicobacter pylori*, however, for kidney patients choosing the right therapeutic method is of notable importance and since there are many diagnostic and therapeutic measures taken, non-aggressive or less aggressive measures should be considered more (3-5).

In this regard, some studies have dealt with the diagnostic value of *Helicobacter pylori*. 

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Gastrointestinal complications are some of the most serious concerns of CKD patients (1). In most cases, treating gastrointestinal complications are symptomatic, but treating and eliminating the cause is essential to prevent the outbreak of serious complications, especially the hemorrhagic complications (2,16). Helicobacter pylori is responsible for the development of gastrointestinal complications, especially stomach ulcer and duodenum and stomach inflammation and even stomach neoplasms. It also increases the risk of developing cardiovascular diseases.

In one of these studies the diagnostic values of fecal Helicobacter pylori antigen test and urea breathing test have been compared and the former has been reported to be a more appropriate and safe method (10-14).

Eradication of Helicobacter pylori in CKD

Eradication of Helicobacter pylori is as important as the diagnostic measures (14-16). In patients affected by Helicobacter pylori, the incidence of gastrointestinal diseases is higher and it is necessary that a treatment to eradicate Helicobacter pylori be found (15-17). One of the most severe gastrointestinal complications in hemodialysis patients is gastrointestinal hemorrhage. Due to the administration of anti-platelets and anti-coagulant medications to these patients for preventing of hypertension and cerebrovascular accidents, the risk of hemorrhage is high for them. The prevalence of peptic ulcers is higher among patients affected by Helicobacter pylori infection, therefore eradication treatment of Helicobacter pylori has been recommended, and it is detected that, this kind of treatment should administered in patients who are affected by underlying diseases and risk factors (15-18). Many therapeutic regimens have been advised for Helicobacter pylori. The common feature of the most of therapeutic regimens is a proton pump inhibitor medicine and an antibiotic which are administered as different formulations and protocols. However paying attention to antimicrobial resistance is also necessary and this has led to different medications being investigated and studied (16,19,20).

In hemodialysis patients, Helicobacter pylori prevalence is slightly less than the normal population. However they have many risk factors for gastrointestinal diseases. Therefore, it is necessary to eradicate Helicobacter pylori to prevent gastrointestinal hemorrhage (16). A suitable therapeutic regimen is the three-medication treatment using omeprazole, amoxicillin and azithromycin or clarithromycin (21). In some studies administering metronidazole instead of amoxicillin, due to the possibility of kidney damage caused by amoxicillin, has been advised (22).

Due to the special conditions of hemodialysis patients, reducing the dosage of medications is also one of the significant and essential issues and in one of the studies it has been suggested that reducing the dose of the medications used in the regimen to half is also as effective as them being administered in their full dosage (23).

Treatment of Helicobacter pylori in CKD patients

Gastrointestinal complications are some of the most serious concerns of CKD patients (1). In most cases, treating gastrointestinal complications are symptomatic, but treating and eliminating the cause is essential to prevent the outbreak of serious complications, especially the hemorrhagic complications (2,16). Helicobacter pylori is responsible for the development of gastrointestinal complications, especially stomach ulcer and duodenum and stomach inflammation and even stomach neoplasms. It also increases the risk of developing cardiovascular diseases (3,10). Dialysis patients are always under different diagnostic and therapeutic measures, which are sometimes aggressive, due to the nature of their disease. There has been many methods devised to diagnose and treatment Helicobacter pylori, however for kidney failure patients, choosing the right therapeutic method is of momentous importance and since there are many diagnostic and therapeutic measures taken, non-aggressive or less aggressive measures should be considered more (3,20-23).

Conclusion

In summary, it can be stated that dialysis patients suffer from many issues and even solving one of their countless issues is of great help to these patients. The diagnosis and the treatment of Helicobacter pylori is indispensable due to the increased risk of gastrointestinal hemorrhage and taking non-aggressive or less aggressive diagnostic measures and utilizing more short-term and lesser-dosage therapeutic protocols is also recommended.

Author’s contribution

MRT was the single author of the manuscript.

Conflicts of interest

The author declared no competing interests.

Ethical considerations

The author of this manuscript declares that he has followed the ethical requirements for this communication. Also, ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the author.

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