SYSTEMATIC LITERATURE REVIEW : EFEK PENGGUNAAN OMEPRAZOLE DAN LANSOPRAZOLE TERHADAP *Lactobacillus* sp

SKRIPSI

Untuk Memenuhi Persyaratan

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RINGKASAN

Alfiasih, Kiki Mustika. Fakultas Kedokteran, Universitas Islam Malang, Januari 2021. *Systematic Literature Review*: Efek Penggunaan Omeprazole dan Lansoprazole Terhadap *Lactobacillus* sp. **Pembimbing 1**: H.R.M. Hardadi Airlamgga. **Pembimbing 2**: Reza Hakim

Pendahuluan: Omeprazole merupakan generasi pertama sedangkan Lansoprazole generasi kedua *pump proton inhibitor*. Selama dekade terakhir, terdapat peningkatan penggunaan PPI yang berisiko meningkatkan efek samping. Penekanan asam kronis dengan PPI jangka panjang memfasilitasi pertumbuhan bakteri di usus kecil dan berkontribusi pada migrasi mikroflora kolon. *Lactobacillus* merupakan flora normal pada saluran pencernaan manusia yang memproduksi antimikroba. S*ystematic literature review* ini bertujuan mengetahui efek penggunaan omeprazole dan lansoprazole terhadap *Lactobacillus* sp.

Metode: *Systematic Literature Review* mengenai efek penggunaan omeprazole dan lansoprazole terhadap *Lactobacillus* sp yang dilakukan pencarian melalui database Pubmed, ScienceDirect, dan Google Scholar dengan memasukkan kata kunci berupa Omeprazole, Lansoprazole, *Lactobacillus* sp. Jurnal dipilih sesuai kriteria inklusi dan kriteria eksklusi yang telah ditetapkan.

Hasil: Pencarian dengan menggunakan kata kunci dan menyeleksi berdasarkan kriteria inklusi serta kriteria eksklusi didapatkan sejumlah 13 jurnal. Sepuluh jurnal yang membahas tentang omeprazole didapatkan enam jurnal yang signifikan terhadap Lactobacillus sp. Sedangkan dari tiga jurnal lansoprazole didapatkan tiga jurnal yang signifikan terhadap Lactobacillus sp.

Kesimpulan: Tidak ada perbedaan efektivitas dalam penggunaan omeprazole dan lansoprazole terhadap *Lactobacillus* sp.

Kata Kunci: Omeprazole, Lansoprazole, *Lactobacillus* sp

SUMMARY

Alfiasih, Kiki Mustika. Faculty of Medicine, University of Islam Malang, January 2021. *Systematic Literature Review* on the effects of omeprazole and lansoprazole use on *Lactobacillus* sp. **Supervisor 1**: H.R.M Hardadi Airlangga. **Supervisor 2**: Reza Hakim

Introduction: Omeprazole is the first generation, while Lansoprazole is the second generation proton inhibitor pump. Over the last decade, increased use of PPIs carries the risk of increasing side effects. Chronic acid suppression with long-term PPIs facilitates bacterial growth in the small intestine and contributes to the administration of the colonic microflora. *Lactobacillus* is a normal flora in the human digestive tract which produces antimicrobials. This systematic literature review aims to see the effects of using omeprazole and lansoprazole on *Lactobacillus* sp.

Method: *Systematic Literature Review* on the effects of omeprazole and lansoprazole use on *Lactobacillus* sp which was searched through the Pubmed, ScienDirect, and Google Scholar databases by entering the keywords Omeprazole, Lansoprazole, and *Lactobacillus* sp. Journals are selected according to the inclusion and exclution criteria.

Result: Search using keywords and selecting based on inclusion criteria obtained 13 journals. There are ten journals about omeprazole but only six journals that was significant for *Lactobacillus* sp. Meanwhile, from three lansoprazole journals, there were three journals that were significant for *Lactobacillus* sp.

Conclusion: There was no difference in effectiveness in the use of omeprazole and lansoprazole to *Lactobacillus* sp

Keyword: Omeprazole, Lansoprazole, *Lactobacillus* sp

BAB I

PENDAHULUAN

1.1 Latar Belakang

Proton Pump Inhibitor (PPI) termasuk dalam terapi yang mengatasi penyakit asam lambung seperti gastroesofageal reflux disease (GERD), esofagitis erosif, dispepsia, dan ulkus peptikum. Angka penggunaan PPI di Prancis tahun 2015 mencapai 15 juta jiwa, di rumah sakit Saga Jepang mulai Januari tahun 2009 hingga 2016 mencapai 91.208 jiwa (De Bruyne and Ito, 2018; Sakata *et al.*, 2020). Sedangkan penggunaan PPI di Indonesia khususnya di RSUD Sultan Syarif Mohamad Alkadrie kota Pontianak pada periode Januari-Desember 2017 mencapai 35 pasien (Santika *et al.*, 2019).

Proton Pump Inhibitor (PPI) bekerja dengan cara menghambat pengeluaran H^+/K^+ -adenosine triphosphatase sehingga mengurangi sekresi asam lambung (Aronson, 2016). Omeprazole dan lansoprazole merupakan generasi pertama *pump proton inhibitor*. Omeprazole merupakan jenis PPI yang paling banyak digunakan dengan presentase 76.9% disusul dengan lansoprazole 1,7 % (Granero-melcon *et al.*, 2018). Lansoprazole mempunyai empat fluorides pada rantai pyridine ringside, tiga kelompok substituen yang digantikan oleh ethyoxyl fluoride, membuatnya 30% lebih efektif daripada omeprazole. Lansoprazole lebih lipofilik daripada omeprazole karena dapat menembus membran sel lebih cepat untuk mengubah asam sulfonat dan turunan sulfonil, sehingga menghasilkan efek penekan asam (Zeng *et al.*, 2015).

Selama dekade terakhir, terdapat peningkatan penggunaan PPI obat yang tidak tepat membuat pasien tanpa indikasi dapat menggunakan obat tersebut dengan bebas (Fossmark *et al*, 2019). Penekanan asam kronis dengan PPI jangka panjang menyebabkan hipokloridria, yang mengubah lingkungan intraluminal untuk memfasilitasi pertumbuhan bakteri di usus kecil dan berkontribusi pada migrasi mikroflora kolon (Tbeisen *et al.*, 2000; Williams, 2001).

Pertumbuhan berlebih bakteri usus halus (SIBO) adalah suatu kondisi klinis dimana usus halus bagian proksimal menjadi tempat kolonisasi mikroflora yang abnormal (> 10^5/mL) (Krajicek and Hansel, 2016). Hal ini disebabkan pemberian jangka panjang PPI dengan cara menurunkan sekresi asam lambung dan efek bakterisidal dari cairan lambung yang mengakibatkan peningkatan kepadatan mikroba di usus halus (Revaiah *et al.*, 2018).

Probiotik merupakan mikroorganisme hidup yang memberikan efek menguntungkan dalam tubuh. Probiotik berasal dari golongan bakteri asam laktat (BAL), salah satu contohnya genus *Lactobacillus* yang merupakan bagian dari flora normal pada saluran pencernaan manusia (Sujaya *et al.*, 2008). Salah satu mekanisme utama probiotik adalah produksi antimikroba. *Lactobacillus* spp. merupakan bagian dari probiotik yang mampu mengeluarkan bakteriosin LMWB yang bersifat antimikroba. Bakteriosin bekerja menghancurkan sel patogen target melalui penghambatan sintesis dinding sel. Kemudian membentuk agregasi untuk menginvaginasi peptida antimikroba di dalam membran sel bakteri sehingga menyebabkan kematian sel (Ashaolu, 2020). Sifat antimikroba yang dimiliki oleh bakteri probiotik memungkinkan mengurangi beban efek samping selama terapi PPI. Oleh karena itu peneliti ingin melakukan *systematic literature review* yang

bertujuan mengetahui *efek penggunaan omeprazole dan lansoprazole terhadap Lactobacillus sp.*

1.2 Rumusan Masalah

1. Bagaimana *efek penggunaan omeprazole terhadap Lactobacillus sp?*
2. Bagaimana *efek penggunaan lansoprazole terhadap Lactobacillus sp?*

1.3 Tujuan Penelitian

Penelitian ini bertujuan antara lain :

1.3.1 Studi literatur bertujuan mengetahui *efek penggunaan omeprazole terhadap Lactobacillus sp.*

1.3.2 Studi literatur bertujuan mengetahui *efek penggunaan lansoprazole terhadap Lactobacillus sp.*

1.4 Manfaat Penelitian

Penelitian ini sebagai penelitian systematic review yang diharapkan dapat memiliki manfaat baik berupa manfaat akademik maupun manfaat praktis.

1.4.1 Manfaat akademik

Studi literatur ini diharapkan dapat menambah pengetahuan terkait *efek penggunaan omeprazole dan lansoprazole terhadap Lactobacillus sp.*

1.4.2 Manfaat Praktis

Studi literatur ini diharapkan menjadi dasar ilmiah mengenai *efek penggunaan omeprazole dan lansoprazole terhadap Lactobacillus sp.*

BAB VII

PENUTUP

7.1 Kesimpulan

Berdasarkan penelitian ini dapat disimpulkan bahwa

1. Tidak ada perbedaan efektivitas dalam penggunaan omeprazole dan lansoprazole terhadap *Lactobacillus* sp.

7.2 Saran

Penelitian ini menyarakan hal–hal berikut untuk menunjang penelitian selanjutnya guna pengembangan dan kemajuan ilmu pengetahuan:

1. Melakukan perbandingan efektvitas penggunaan omeprazole dan lansorpazole terhadap *Lactobacillus* sp secara in vivo
2. Melakukan perbandingan penggunaan semua jenis terapi PPI terhadap *Lactobacillus* sp.

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