Influence of Faradarmani Consciousness Field on Antibiotics Resistance in Bacteria

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Abstract

Antibiotic resistance has increased due to the overuse of antibiotics in treatment and has become a major challenge in eliminating bacteria, accompanied by severe financial and human consequences worldwide. The resistance of hospital-acquired bacteria is a significant concern, and many scientific studies aim to develop strategies to prevent antibiotic resistance. Mohammad Ali Taheri has introduced T-Consciousness Fields as new types of fields. These fields are neither matter nor energy and therefore cannot be directly measured. However, it is possible to study their effects through controlled experiments. After examining the effect of the Faradarmani Consciousness Field (FCF) on bacterial populations in a previous study, the aim of this study was to investigate the effect of FCF on the antibiotic resistance of identified hospital bacterial strains. Using disk diffusion and MIC methods, it was observed that the resistance of the bacterial populations changed. Specifically, the strains *Pseudomonas aeruginosa, Escherichia coli, Bacillus subtilis, Klebsiella pneumoniae, Acinetobacter baumannii,* and *Staphylococcus aureus* showed a decrease in antibiotic resistance, while the *S. aureus* and *P. aeruginosa* strains showed an increase in antibiotic resistance. Based on the obtained results, the Faradarmani Consciousness Field may influence antibiotic resistance responses in resistant populations. This observation requires further investigation. If these findings can be replicated by other researchers, the Faradarmani Consciousness Field could be considered a potential solution to this global issue.

Keywords: antibiotic resistance, T-Consciousness Fields, disk diffusion method, Faradarmani, MIC method

Introduction

Antimicrobials have been used since ancient times. A variety of agents in the environment have been commonly used to eliminate harmful bacteria. These substances include agents such as herbs, honey, garlic, ginger, echinacea, goldenseal, clove, and oregano (Torrance and Isaacson, 2003). John Parkinson (1567–1650) was the first person to document the treatment of infections using molds (Gould, 2016). Modern antibiotics such as tetracycline have been detected in human bone excavated in Sudanese Nubia (Bassett et al., 1980). In the twentieth century, while investigating Staphylococcus, Alexander Fleming accidentally discovered penicillin (Ligon, 2004; Fleming, 1929). The discovery and early development of penicillin is one of the most significant medical achievements, saving the lives of millions of people worldwide (Ligon, 2004). Nevertheless, infectious diseases remain a leading cause of death each year, with lower respiratory infections ranked as the fourth leading cause in 2019 (WHO, 2021). In 1945, Fleming warned about the dangers of misusing penicillin, and the first case of penicillin resistance was reported in 1947 (Barber and Rozwadowska-Dowzenko, 1948).

Antimicrobial resistance poses a severe threat to human health and represents a major financial burden (WHO, 2017). Since the overuse of antimicrobial drugs promotes bacterial resistance, antibiotic stewardship strategies are increasingly implemented to protect patients from the harms of unnecessary antibiotic use and to combat antibiotic resistance (CDC, 2021). In an effectiveness study conducted by the antimicrobial stewardship team in Shanghai, China, the relationship between antibiotic use and resistance in Gram-negative bacteria was evaluated from 2008 to 2013. The researchers found that reducing the frequency and dosage of antibiotics had only limited effects on reversing bacterial resistance (Guo et al., 2015).

There are different mechanisms of resistance to antimicrobials, including intrinsic (passive) and acquired (active) resistance. In intrinsic resistance, Gram-negative bacteria such as *Pseudomonas aeruginosa* have low membrane permeability and a high natural resistance to antibiotics (Nakae, 1995). Acquired resistance can occur through changes in the bacterial genome obtained via horizontal transfer of resistance genes from other strains and species (for a review, see Bockstael and Van Aerschot, 2009; Todar, 2011). The horizontal transfer of plasmids has been reported to play a vital role in the adaptation of bacteria to various environments (Heuer and Smalla, 2012; Sobecky and Coombs, 2009).

One of the major classical mechanisms of antibiotic inactivation is the chemical modification of antibiotics by enzymes such as penicillinase (β-lactamase) (Abraham and Chain, 1940). β-lactams constitute a large class of antibiotics, including penicillins, cephalosporins, carbapenems, and monobactams (De Pascale and Wright, 2010). To overcome β-lactamase-mediated resistance, β-lactamase inhibitors such as clavulanate, sulbactam, and tazobactam have been developed (Drawz and Bonomo, 2010). For example, β-lactam antibiotics are generally ineffective against *Mycobacterium tuberculosis;* however, it has been reported that meropenem combined with the β-lactamase inhibitor clavulanate shows inhibitory activity against *M. tuberculosis* (Hugonnet et al., 2009).

About 100 years ago, viruses that infect bacteria (bacteriophages) were discovered (Salmond and Fineran, 2015). They have since been proposed as an alternative approach to combat antibiotic-resistant bacteria (Kortright et al., 2019). Phages are highly specific for particular bacterial strains and are nontoxic to patients, whereas synthetic antibiotics are often associated with undesired kidney or liver damage (Saha and Mukherjee, 2019). However, data on the use of bacteriophages to treat bacterial diseases in humans are still insufficient, and further studies are required (Principi et al., 2019).

Finding an effective strategy to combat antibiotic resistance is essential. According to Taheri's theory, there are various T-Consciousness Fields (TCFs) that are subsets of the Cosmic Consciousness Network. These fields are non-frequency in nature, and their effect is initiated through the mind of the announcer (*Faradarmangar*) with an instantaneous and short attention to the subject under study (Taheri, 2013).

In a previous study by the authors, the effects of Faradarmani CF on bacterial population growth were examined (Taheri et al., 2021b). The aim of the present study was to investigate the effects of Faradarmani CF on the antibiotic resistance characteristics of hospital strains.

Material and Methods

Application of Faradarmani Consciousness Field

Application of the Faradarmani Consciousness Field to the samples was carried out according to the protocol defined by the Cosmointel Research Center[2]. Additional details can be found in the Considerations section of this issue.

Disk Diffusion Method

In this study, we examined the effect of the Faradarmani Consciousness Field on antibiotic resistance in hospital-acquired Gram-negative bacteria (*Pseudomonas aeruginosa, Klebsiella pneumoniae*) and a Gram-positive bacterium (*Staphylococcus aureus*). Inhibition zones were measured according to CLSI tables (https://clsi.org). In this test, we used antibiotic discs from PADTAN TEB Co. (Tehran, Iran), with the concentrations provided in Table 1.

Table 1. Antibiotic discs and their corresponding concentrations used in the disk diffusion test.

Antibiotics	*Concentration (µg/Disc)*
Doxycycline (D)	**30**
Streptomycin (S)	**10**
Colistin (C)	**10**
Ceftriaxone (CRO)	**30**
Cotrimoxazole (SXT)	**25**
Ciprofloxacin (CP)	**5**
Clindamycin (CC)	**2**
Erythromycin (E)	**15**

MIC Method

To confirm the effects of the Faradarmani Consciousness Field on antibiotic resistance, we used three hospital-acquired bacteria — *Pseudomonas aeruginosa, Acinetobacter baumannii,* and *Staphylococcus aureus* — as well as a laboratory strain, *Bacillus subtilis.* Responses were measured in both treated (Faradarmani) and untreated (control) conditions.

The antibiotics used in this experiment included six agents obtained from MAST (UK): amoxicillin (AMX), ciprofloxacin (CIP), ceftazidime (CAZ), meropenem (MEM), gentamicin (GEN), and tetracycline (TE). MIC values were determined using the Broth Microdilution method across 16 concentrations (from 256 µg/ml to 0.5). All experiments were performed in duplicate.

Statistical Analysis

In this study, each sample had two replicates, and no data points were excluded. Analyses were performed using SPSS software (version 27) and the t-test, with a p-value of < 0.05 considered statistically significant.

Results

The results of the present study are presented in two sections based on the methods used to evaluate bacterial resistance and susceptibility.

Results from the Disk Method

The effect of the Faradarmani Consciousness Field on hospital-acquired resistant bacteria was measured using the disk method and is presented in Table 2

[2]www.cosmointel.com

Table 2. Inhibition zone size changes measured by the disk diffusion method. Decreases relative to the control are indicated with "–" and increases with "+".

		Bactericide					Bacteriostatic		
		COL	CTR	SXT	STR	CIP	ERI	CLN	DOX
p. aeruginosa (1)	Pathogen	0	+4%	+2.3%	-7.10%	-3.7%	+4.7%	+3.7%	+3.2%
p. aeruginosa (2)	Pathogen	+3.48%	-4.5%	+1.5%	+5.55%	+6.6%	0	+4.3%	+4.37%
S. aureus (1)	Commensal / Opportunistic pathogen	0	+12.5%	0	-3.6%	0	0	-2.9%	-1.5%
S. aureus (2)	Commensal / Opportunistic pathogen	0	-0.7%	0	0	0	0	-0.58%	0
K. pneumonia	Pathogen	+2.5%	0	0	+3.96%	0	0	+10%	0

Abbreviations: Colistin, COL; Ceftriaxone, CTR; Cotrimoxazole, SXT; Streptomycin, STR; Ciprofloxacin, CIP; Erythromycin, ERI; Clindamycin, CLN; Doxycycline, DOX.

As shown in Table 2, the changes in halo size (decrease or increase in antibiotic resistance) range from –0.58% to 12.5%. Treatment with the Faradarmani Consciousness Field resulted in decreased halo size (increased resistance) in 8 cases (4 antibiotic-sensitive and 4 antibiotic-resistant). Conversely, the Faradarmani Consciousness Field increased halo diameter (decreased resistance) in 15 cases (6 antibiotic-sensitive and 9 antibiotic-resistant). Additionally, in 17 cases (12 antibiotic-resistant and 5 antibiotic-sensitive), no change in halo diameter was observed following Faradarmani treatment.

Results from the MIC (Minimum Inhibitory Concentration) Method

To complement the results of the previous method and increase accuracy, the effect of the Faradarmani Consciousness Field on hospital-isolated resistant strains was measured using the MIC method, as shown in Table 3. This effect was determined based on the differences between the Faradarmani-treated samples and the control.

Table 3. MIC values of antibiotics in control samples compared with treated strains: Control MIC – Treated MIC (success rate: "–" indicates increased resistance, and "+" indicates decreased resistance).

	TE	GEN	MEM	CAZ	CFM
S. aureus	24-32 (-33%)	16-8 (+50%)	-	-	128-64 (+50%)
S. aureus (MRSA)	64-32 (+50%)	-	32-16 (+50%)	-	-
E. coli	16-8 (+50%)	-	-	24-14 (+42%)	-
B. subtilis	-	-	64-32 (+50%) 2-0.75 (+62.5%)	-	256-128 (+50%)
K. pneumonia	-	-	-	-	16-8 (+50%)
P. aeruginosa	-	32-16 (+50%) 4-3 (+25%)	-	-	-
A. baumannii	-	-	64-32 (+50%)	-	-

Abbreviations: Tetracycline (TE); Gentamicin (GEN); Meropenem (MEM); Ceftazidime (CAZ); Cefixime (CFM)

Based on the results presented in Table 3, the Faradarmani Consciousness Field reduced resistance in both Gram-positive and Gram-negative bacteria. The only sample that showed an increase in resistance under the influence of Faradarmani was *S. aureus.* The Faradarmani Consciousness Field had no effect on bacteria treated with ciprofloxacin, amoxicillin, or azithromycin. However, the greatest effects of the Faradarmani were observed in treatments with tetracycline, meropenem, and cefixime (three cases).

Discussion

In this study, the effect of the Faradarmani Consciousness Field on the antibiotic resistance of various bacteria was examined. As mentioned in the introduction, this field has no physical or frequency-based nature. Therefore, its influence cannot be considered a quantitative intervention like the use of drugs. It is hypothesized that the information transmitted through TCFs may induce changes in the behavior of the subject under study—in this case, bacteria. From this perspective, the application of the Faradarmani Consciousness Field can be regarded as a qualitative intervention (Taheri, 2013).

According to the results obtained from the disk diffusion test, the direction and magnitude of this field's effects on different bacterial strains and their responses to antibiotics are not uniform, and no consistent pattern is observed. This finding suggests that the mechanism of action of the Consciousness Field does not follow a general mechanism like that of drugs or physical interventions. For example, antibiotics are classified as bacteriostatic, which inhibit bacterial growth, or bactericidal, which kill bacteria (Baquero and Levin, 2021). In contrast, the mechanism of the TCFs does not appear to operate in a linear or fixed manner; rather, it seems to involve complex cellular and regulatory interactions accompanied by information transmission.

Similarly, in the MIC test, although no changes were observed under the influence of the Faradarmani Consciousness Field for some antibiotics, three antibiotics showed a significant reduction of about 50%, indicating increased sensitivity to the antibiotics. It is noteworthy that these antibiotics have different mechanisms of action, such as inhibiting protein synthesis or inhibiting cell wall synthesis, and the effect of the field appeared to be independent of their mechanisms. Therefore, further studies are needed to elucidate how the Faradarmani Consciousness Field influences the behavior of microorganisms.

Previous studies have examined the effects of TCFs on the MCF-7 cancer cell line (Taheri et al., 2020a), Alzheimer's disease in both *in vivo* and *in vitro* models (Taheri et al., 2022), spatial memory and avoidance behavior in a rat model of Alzheimer's disease (Taheri et al., 2021a), wheat plants under salt stress (Torabi et al., 2020), viral growth (Taheri et al., 2021c), and brain electrical activity of *Faradarmangars* (trained individuals) during the application of Faradarmani (Taheri et al., 2020b). Further research is needed to determine the effects of TCFs on various biological systems. Replication of the present experiment by other researchers is essential and valuable for understanding the effects of the Faradarmani Consciousness Field on bacterial resistance responses.

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