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Fight Against Antimicrobial Resistance: An Opinion

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Abstract

Antimicrobial resistance remains a significant problem for plants in agricultural field. Its appropriate solution is essential for innovation, unlocking the immense potential for the future. This opinion article presents our perspectives on the potential for anti-quorum sensing drugs to overcome anti-resistance and the evolving needs of the future.

Keywords: Antimicrobial activity; Anti quorum sensing; Drug; Agriculture

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A Brief Point of View

Antimicrobial resistance is constantly increasing among pathogens. One of the reasons is lack of proper use of medicines, meaning that excessive use of antibiotics is being used during agriculture and animal husbandry, leading to resistance in pathogens. This problem of antimicrobial resistance is more problematic than it looks. Because in future, there will be no effective remedy for simple wound to prevent infection. For this, we need to find new treatments, that is, some such medicines which, if they do not directly target the survival of the bacteria and instead affect its pathogenicity, then perhaps it will develop less resistance because its life i.e. survival will not be affected, rather pathogenicity, which is a part of its life, will only be a problem. So, it is possible that we can overcome anti-microbial resistance. One of the interesting targets being studied from many decades, is quorum sensing. It is bacterial cell density dependent cell-cell communication. By using quorum sensing, bacteria produce such products that are needed in bulk. Pathogen use it to regulate their virulence factors responsible for pathogenicity. So, what should we do? If we target quorum sensing, then the bacteria will not die, but the pathogenicity of the bacteria will be controlled and, in this way, we can kill its infection without affecting their survival directly. Instead, the host environment will automatically kill the pathogen; because pathogen will not be able to control the host defense system. Or combined medicines can also be used which work better than the earlier antibiotics by using them along with anti-quorum sensing agents. Finding such strategies may help to overcome the global problem of antimicrobial resistance [1].

Future Directions

Five main points outline future directions for decreasing antimicrobial resistance:

a) Programs for Antimicrobial Stewardship (ASPSs): Encourage hospitals and other healthcare facilities to use antibiotics responsibly. Establish policies and procedures to stop doctors from abusing antibiotics. Based on diagnosis and response, choose the right antibiotics and how long to take them.

b) Public education and awareness: Spread knowledge about antimicrobial resistance and appropriate antibiotic use among the general public, doctors, pharmacists and other healthcare professionals. To avoid infections, encourage hand-washing and other

personal hygiene habits. Use public education initiatives to dispel myths.

c) Infection control and prevention: Strict regulations and hygienic practices should be put in place to prevent infections in hospitals. Make sure that hand-washing and sanitization are effectively followed. Encourage immunization to lower the risk of infection.

d) Development of new antimicrobial drugs and vaccines: Encourage the development of new antibiotics, vaccines and treatment technologies. Use vaccines to prevent as many infections as possible, thereby reducing antibiotic use. Improve drug delivery systems to ensure better delivery of drugs to patients.

e) Controlling the use of antibiotics in agriculture and animal husbandry: Ban the use of medically important antibiotics in animal husbandry and agriculture. Adopt vaccines and other alternative methods for animal treatment to reduce antibiotic consumption. Educate farmers about the correct use of antibiotics and their harmful effects. Thus, antimicrobial resistance can be effectively reduced through the combined efforts of all stakeholders

at the societal level, such as the medical field, pharmacists, farmers, policymakers and the public [2-3].

Conclusion

In conclusion, the implementation of antimicrobial materials is the way of the future for the prevention of infections. In the fight against antibiotic or antimicrobial resistance in particular, it is expected that these advancements will be crucial in addressing global health issues as research continues to push frontiers.

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