Nonantimicrobial Used Against Bacterial Infections

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- Pharmaceuticals

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- Antibacterial
- Antimicrobials
- Drug Resistance
- Patient Care
- Pharmaceuticals

In the last century, the development of antimicrobials used to treat serious infections has helped the medical field take huge strides towards curing patients; however, there is a growing need for better antimicrobials due to the emergence of serious multidrug resistant infections. There is a deficiency of medications against resistant strains as more research is focusing on new drug discovery, which can be time-consuming, costly, and of high risk. In addition, it is difficult to get these medications to market due to strict FDA regulations.

To find new solutions to this problem, a Purdue University researcher has developed a new method of drug repurposing, which helps to identify three drugs, auranofin, ebselen, and 5-fluoro-2'-deoxyuridine (FdUrd), as potent antimicrobial agents against Gram-positive pathogens such as MRSA. Although these drugs had other FDA approved indications, expanding their use to antimicrobial therapy would increase medication options for infections. Since these drugs are either FDA-approved drugs or clinically safe molecules that have an established pharmacokinetic and safety profile, it will significantly reduce the time and cost required to bring these drugs to clinical trials. Furthermore, they have greater oral bioavailability, potent bacterial killing activity, very low frequency of resistance, suppression of bacterial virulence factors and toxin production, potent anti-biofilm activity, and good penetration and killing of intracellular MRSA. These drugs can be used as antimicrobial medicines in hospitals and clinics for seriously ill patients with infections. This improvement in research also allows for the discovery of other drugs that can be repurposed and used as antimicrobials.

Advantages:
-Repurposed use of non-antimicrobials against infections
-Less time consuming and costly for clinical trial data
-Efficient antimicrobial activity against MRSA

Potential Applications:
-Pharmaceuticals

-Gram-positive pathogen treatment

People:

- Seleem, Mohamed (Project leader)

Intellectual Property:

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