Scientists Find a Revolutionary Way to Make Antibiotics More Effective

Description

Most of us get burns, cuts, and other injuries at one point or another. Some of them aren't a source of concern, and it's easy to treat them, while others can be more complicated and require treatment, especially if the infection is involved as well. People can also develop infections of wounds after surgeries. Regardless of the scenario, the most common treatment route is to take antibiotics, but what happens when they don't work? Scientists have found a revolutionary way to make antibiotics more effective. Read all about it below.

The study

The primary objective of the study was to employ electroceutical principles as an alternative to pharmacological intervention in order to manage the wound biofilm infection. In other words, a group of scientists at the *Indiana University School of Medicine* wanted to find a way to treat wound biofilm infections more effectively without having to "come up" with a new antibiotic. Why? Bacteria that cause infections can easily acquire tolerance to antibiotics, thus rendering them ineffective. Creating new antibiotics is a good thing as it gives doctors more treatment options for patients, but the outcome is still the same in the long run. That's why scientists led by *So Chandan Sen* wanted to inspect whether there are ways of defeating infection in a manner that is not pharmacologically-based.

Wound infections are tricky to treat due to the way bacteria congregate to create them. Bacteria form biofilm wherein groups of different kinds of bacteria join together to secrete a sticky mesh that keeps them in their place inside the wound. Bacterial biofilms are a major wound complication. Figures show that 60% to 80% of infections are caused by bacterial biofilms.

The importance of this study is that it's the first research ever to use an electric field-based dressing to treat biofilms rather than antibiotics. Scientists applied wireless electroceutical dressing (WED) within two hours of wound infection to test its ability to prevent the formation of biofilm. Additionally, they used WED seven days after the infection as well, in order to study disruption of the established biofilm. Scientists treated wounds with WED or placebo twice a week for 56 days.

The results

Findings were published in the journal *Annals of Surgery*, and they showed that dressing is not only successful in fighting the bacteria on its own, but it's also successful when used in combination with other medications. In fact, it can make other drugs i.e., antibiotics more effective when used in combination with them. The use of electricity restored skin barrier function, and it also rescued against biofilm-induced persistent inflammation by circumventing nuclear factor kappa B activation and its downstream cytokine responses. In other words, the use of electric field-based dressing improved skin function and prevented infections from developing in the future as well.

The study is the first to show that bacterial biofilm can be disrupted successfully by using electroceutical dressing. Marketing of the dressing for burn care was recently approved by the FDA.

Can this treatment hurt me?

The idea of using electricity on the body to treat something may seem scary to some people, but it's harmless. You see, the study used a dressing that electrochemically self-generates 1 volt of electricity upon contact with body fluids like blood or even your wound fluid. This "power" is not enough to electrocute a patient or to harm you in any way. In other words, it's perfectly safe.

PEMF therapy can help you out

Scientists from Indiana University made a significant breakthrough showing that electrical fields can be used to treat biofilm infections and prevent new ones. It also showed that this therapy could boost the effectiveness of the antibiotics that are prescribed to some patient. Not only does it mean we can sort these infections in a natural manner, but also demonstrates that with a simple process such as this, we can enhance the effectiveness of antibiotics without creating new ones.

These findings also show that alternative treatment options such as PEMF therapy can be incredibly helpful in alleviating inflammation and treating or preventing infections of the wounds. The good thing about PEMF therapy is its natural approach that requires no medications. If you think that the process lasts ages you're wrong. For example, BICOM uses dynamic magnetic impulse generator which emits Schumann frequencies and speeds up the whole therapy process. That means you can feel better before you even know it.

Conclusion

Scientists at Indiana University found that the use of electrical field-based dressing can treat biofilm infections of the wounds and prevent new ones from developing. The treatment works on its own or in combination with antibiotics. It shows that biofilm infections, which are complicated in nature, can be resolved in a natural manner. This is the first study to look into the use of electricity in the treatment of this common problem.

References

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