

INTRODUCTION

The Coronavirus disease 2019 (COVID-19) pandemic resulted from severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2)¹. First identified in Wuhan, China in late 2019. Individuals with compromised immune systems and pre-existing conditions are most susceptible to contraction and death. At the time, treatment options for COVID-19 infection were limited². Except for supportive care such as oxygen therapy, mechanical ventilation and fluid management, there are no clear or convincing evidence-based interventions known to treat COVID-19³.

Acute respiratory distress syndrome (ARDS) is characteristic of COVID-19. It is precipitated by damage to the vascular endothelium of alveoli⁴, which prevents adequate vasoconstriction in the lungs. The host is unable to compensate for the lack of oxygen, resulting in hypoxia. Most severely ill patients present with single organ failure (i.e. respiratory insufficiency), but some progress into systemic disease and multiple organ dysfunction⁵. Coagulopathies, such as thrombocytopenia⁵, are indicators of poor prognosis.

Ahealon is a homeopathic FDA-approved prescription-only drug developed by Princeton Biotechnologies. It is available in spray form and nebulizable solution. It can be used for a broad variety of medical conditions. It activates the immune system, decreases inflammation, fights bacterial, fungal and viral infections, promotes wound healing by increasing tissue oxygenation⁶ and accelerates epithelization for scar formation. Given Ahealon's classification as a homeopathic drug, its exact mechanism of action is unknown. Its properties lie in the chemical components: arnica, silver, calendula and echinacea among others found to be immunostimulants in general, which can help the body heal in the presence of stress.

Conflicts of Interest: The authors of this investigation report no affiliations to Princeton Biotechnologies or any other conflict of interest.

Objectives

- To explore and examine the current evidence and research on the drug Ahealon.
- To assess Ahealon's potential use for the treatment of COVID-19.

Hypothesis

Given the lack of definitive treatment modalities in the fight against COVID-19, the use of immune-boosting homeopathic drugs such as Ahealon may help ameliorate symptoms and improve overall survival rates.

Methods

The primary database used was Medline (via PubMed). Only articles less than 10 years old were used (2011 and on). The key words used were Ahealon, homeopathic, COVID-19, respiratory distress (ARDS) as well as each individual ingredient. The search was further supplemented by hand-searching relevant articles for supportive information. Initially, the approach was to include only articles published in the United States. However, it was soon found that many relevant and reliable studies (RCTs, systematic reviews) had been published outside the US, making our search much less thorough and incomplete had these been excluded. A total of 24 articles were found relevant and used in this investigation.

Results

There are currently no patient-based studies indicating the use of Ahealon for COVID-19. The homeopathic drug has been used effectively to improve healing, recovery, pain reduction and symptoms of conjunctivitis, pressure sores, cellulitis, dry socket, pneumonia, dermatitis, arthritis, trigeminal pain, etc. It has also been used on superficial wounds, improving healing time and relieving pain. The majority of these uses have been documented cases and patient testimonials. A variety of studies were found with regards to Ahealon's ingredients. A summary of each is outlined below:

Arnica – **Antimicrobial**, anti-fungal, **antioxidant**, reduces **bacterial resistance** to antibiotics, **anti-tumor**, reduces post-surgery **soresness**, increases phagocytosis by **granulocytes**⁷.

Calendula – **Antiviral**, antigenotoxic, **cytotoxic/anti-tumor**, **anti-inflammatory**, lymphocyte activator, immuno-stimulant, hepatoprotective, **anti-HIV**^{9, 10}.

Echinacea – Relieves sore throat, cough and fever, **antimicrobial**, **antiviral**, effective for **urinary tract and ear infections**, **prevents tissue damage** by inhibiting TNF-alfa^{11, 12, 13}.

Urtica – Relieves **painful muscles/joints**, eczema, arthritis, gout, used benign prostatic hyperplasia problems, reduces sneezing/itching symptoms of allergic rhinitis, speeds recovery of **joint injuries**, decreases thromboxane production in human platelets¹⁴.

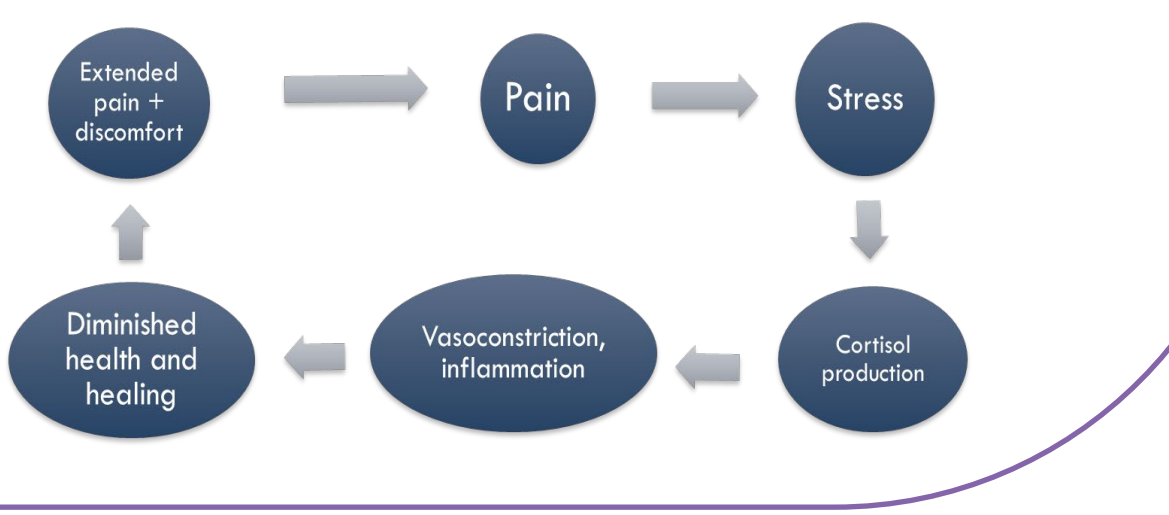
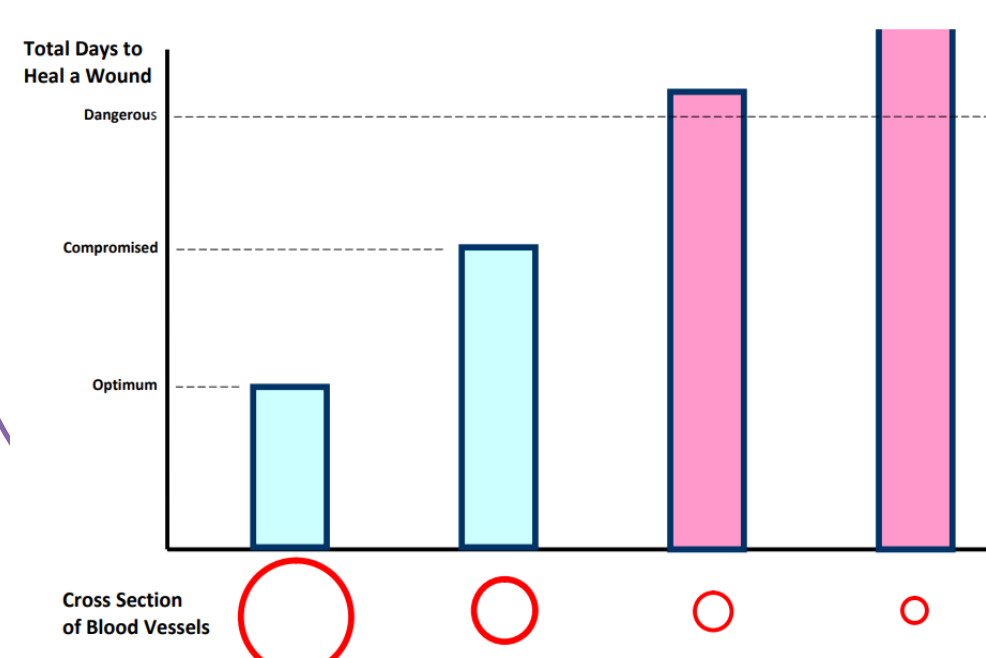
Hypericum – **Antibacterial**, **antiviral**, **anti-inflammatory**, can help treat mild-to-moderate depression, **relieves cramps**, irritability and breast tenderness associated with menstruation, reduces symptoms of **trigeminal neuralgia**¹⁵.

Thiosinaminum – Reduces fibrosis, can help with plantar fasciitis, conjunctivitis, scleroderma, amenorrhea, polycystic ovaries, fibroids and pelvic adhesion¹⁶.

Silver – Broad spectrum **anti-microbial** activity including **antibiotic-resistant** bacteria, minimal toxicity at low concentrations, reduces resistance due to activity at multiple bacterial target sites, combined with sulfur treats infections of secondhand **3rd degree burns**^{17, 18}.

Sulfur – Antiseptic, **antimicrobial**, used to treatment of skin disorders (eczema, dandruff, folliculitis, warts, pityriasis versicolor, psoriasis, acne), essential in synthesis of collagen¹⁹.

The compounds outlined above have been studied at length and show minimal or no toxicity, especially in the highly-diluted concentrations found in Ahealon. The main contraindication to its use remain hypersensitivity reactions, mainly sulfur and silver allergies. This margin of safety and the breadth of scientific data supporting its ingredients were the main reason why the drug received FDA approval without the need for clinical trials. Despite this, Ahealon remains a prescription-only drug as of March 2021.



Discussion

Current evidence suggests that Ahealon has much potential in treating a wide range of medical conditions. It is evident that its ingredients work synergistically to induce the activation of the immune system and of other less-known pathways that modulate pain, inflammation, and wound healing. The question now remains: How effective is Ahealon against COVID-19?

Given that COVID-19 injures lung vascularity and makes the host more prone to develop coagulopathies, it seems medically reasonable to use Ahealon for treatment, or at the very least concomitantly with other therapies. The drug's liquid form means it can be nebulized and effectively driven into the respiratory system, where it has the potential to induce repair of damaged vascular endothelium. In addition, its immune-activating and wound-healing properties may promote the growth of white blood cells and platelets, thus decreasing the chance of developing coagulopathies.

Considering the lack of definitive treatments for COVID-19 patients, it may be prudent to turn our attention elsewhere, perhaps to a different type of drug or treatment method(s). There is one route we know to successfully overcome a COVID-19 infection: the host's immune system. Currently, the only accepted immunomodulators outlined by the NIH are dexamethasone and Baricitinib, among others that lack sufficient evidence²⁰. A double blind study, however, showed that the administration of intravenous immunoglobulin (IVIG) in patients with severe COVID-19 infection who did not respond to initial treatment could improve their clinical outcome and significantly reduce mortality rate²¹. Another study found that targeting the angiotensin-converting enzyme 2 (ACE-2) receptor and protease inhibitors using homeopathic agents may inhibit the entry of SARS-CoV-2 and its subsequent multiplication in the human body²². These facts suggest that perhaps the answer is not to find a definitive treatment for COVID-19, but to learn how to equip the immune system with the necessary tools it needs to do what it knows best.

Lastly, it is important to mention that Ahealon's label as a homeopathic drug poses significant challenges to its adoption and use. In the US, alternative medicine and its branches (herbalism, acupuncture, homeopathy etc.) tend to be disregarded and overlooked by the medical community²³. This can be attributed to the discipline's lack of scientific data, but also to the drugs' inconsistent efficacy among patients. Surprisingly, an article found during the search provided mathematical proof of the fundamental therapeutic law on which homeopathy is founded²⁴. Proven or not, public acceptance of alternative medicine has been steadily increasing over the past decades, yet skepticism in the medical community remains the biggest obstacle to providing patient-centered care using integrative medicine.

CONCLUSION

The homeopathic drug Ahealon has been used as a supportive treatment for numerous medical conditions. Its ability to promote healing, stimulate the immune system and reduce pain and inflammation suggest the potential impact it could have on COVID-19 patients. Having all-natural non-toxic ingredients and contraindications limited to hypersensitivity reactions, its use in COVID-19 patients undergoing conventional treatments poses little to no risk. However, the lack of controlled subject-based studies and the drug's label as homeopathic stand out as major obstacles in its adoption and use, not only for COVID-19 but also for the many conditions it has successfully treated on an individual basis. Future human-subject clinical trials on this drug should be the starting point to overcome the medical community's bias against homeopathic drugs based on their claim of lacking evidence.

The ever-emerging biological threats the world has seen recently have unmasked the many limitations and shortcomings of western medicine. Using a combination of both disciplines for patient-centered care could have a long-lasting impact on the population's health and well-being. After all, everything that constitutes western medicine today was at some point considered *alternative*, having been integrated as such using controlled objective research approaches that have been the backbone of all science for hundreds of years.

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