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Current treatments and future directions in regenerative medicine

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Abstract (Limit 600 words)

The discovery of medicines that can regenerate tissues and reduce dependency on transplants is motivated by the loss of organs and tissues due to illness and damage. Regenerative medicine is an interdisciplinary discipline that uses engineering and biological science concepts to stimulate regeneration in damaged and wounded tissues and organs. A variety of regenerative medicine therapies, including those for wound healing and orthopaedics, have been approved by the Food and Drug Administration (FDA) and are now commercially accessible since the field's start some decades ago. This review will go through these medicines as well as additional regenerative medicine techniques that are currently being researched in preclinical and clinical settings. Regenerative medicine has the ability to repair or replace tissues and organs that have been destroyed by age, disease, or trauma, as well as to correct congenital flaws. To date, promising preclinical and clinical data support the possibility of using regenerative medicine to treat both chronic diseases and acute insults, as well as maladies affecting a wide range of organ systems and contexts, such as dermal wounds, cardiovascular diseases and traumas, cancer treatments, and more. The present approach of transplanting intact organs and tissues to cure organ and tissue failures and loss is hampered by a scarcity of donors and frequently significant immunological problems, but these concerns might be overcome with the application of regenerative medicine technologies. The topic of regenerative medicine comprises a variety of treatments, including the use of materials and de novo produced cells, as well as different combinations thereof, to efficiently replace lost tissue, both architecturally and functionally, or to aid tissue recovery. Although adult humans have limited regenerative potential compared to lesser vertebrates, the body's intrinsic healing response can be used to boost regeneration .

The first part of this study will focus on regenerative medicine medicines that have already been approved by the FDA. The preclinical and early clinical studies to modify the patient's physiological environment by introducing materials, live cells, or growth factors to replace damaged tissue or boost the body's intrinsic healing and repair systems will be discussed next. It will also be explored how to improve the structural complexity of implantable grafts and how to efficiently use freshly emerging cell sources.

Biography (Limit 200 words)

Paul S Miller is a Senior Therapist and a researcher who has developed a technique called Rebinding of the Body which helps people recover from trauma, learn self-help techniques and lead more productive lives. Paul S Miller is currently at the Department of Molecular Pharmacology and Experimental Therapeutics, Mayo Clinic, Rochester, MN. His intersubjective ethnographic study has been published in a text called, “Women, Trauma and Alcohol Dependency, Connection and disconnections in alcohol treatment for

women". She has published several articles in child and family psychiatry including an extensive literature review called "The Health Impact of Childhood Trauma".

About Research Topic (Limit 200 words)

Success in the delivery of regenerative medicine procedures will critically depend on the optimal selection of patient populations and the stratification of disease severity. The initial rollout of regenerative products and services will need to be matched with their value-added proposition, advancing the probability of intended outcome beyond current management strategies. As regenerative applications become increasingly common, the spectrum of patient participation will expand from no-option patients to increasingly include those with earlier stages of disease, ultimately moving toward preemptive interventions for disease prevention. In addition, prophylactic applications of regenerative products in neoadjuvant regimens are considered to offset the dose-limiting adverse effects of aggressive primary therapy. Thus, knowledge and delivery of regenerative medicine is poised to steadily transform health care service lines to address the unmet needs of patients and populations.

About Institution (Limit 200 words)

The Mayo Clinic is a nonprofit American academic medical center focused on integrated health care, education, and research.[6] It employs over 4,500 physicians and scientists, along with another 58,400 administrative and allied health staff, across three major campuses: Rochester, Minnesota; Jacksonville, Florida; and Phoenix/Scottsdale, Arizona. The practice specializes in treating difficult cases through tertiary care and destination medicine. It is home to the top-15 ranked Mayo Clinic Alix School of Medicine in addition to many of the highest regarded residency education programs in the United States. It spends over $660 million a year on research and has more than 3,000 full-time research personnel

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