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Regenerative Medicine Biomaterials

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Mini Review

Biomaterials [1] as a discipline have advanced for around 50 years, and biomaterial science is the study of biomaterials. Any synthetic material that is used to replace a part of a living system or to work in close proximity to living tissue is referred to as a biomaterial. Popular medical devices such as artificial heart valves, artificial hips and knee joints, dental implants, fracture fixtures, skin regeneration templates, dialyzers to support ailing kidneys, and so on are examples of biomaterials. Any material that can be used in these medical applications must meet certain requirements, the most basic of which is the material's biocompatibility.

The field of biomaterials has progressed in several ways, including the ability to investigate different aspects such as molecular biology and cell biology at the implant-host tissue interface, which provides a more comprehensive picture of material biocompatibility. Biomaterials have also progressed in terms of applicability, and they are now being used as carriers to transport both small and large bioactive molecules.

Biomaterial Class

The three main categories of biomaterials:

1. Synthetic and natural polymers

2. Metals and

3. Ceramics (e.g. carbons, glass-ceramics and glasses)

Polymers

Polymers are a type of material that can be aside from tissue regeneration and regenerative medicine; polymeric biomaterials have a wide range of applications. Poly (methyl methacrylate) has been. used as bone cements, poly (glycolic acid) has been used as degradable surgical sutures, poly (glycolic-co-lactic acid) has been used as bone screws, and poly (vinyl siloxane) has been used as dental implants

Metals

In the field of biomaterials, metallic implants have a major economic effect. Steels 316, 316L, vitallium, silver, tantalum, cobalt, F-75, and alloys of Ti, Cr + Co, Cr + Co + Mo, and others are examples of metallic implants. Metallic implants have a number of drawbacks, including poor biocompatibility, corrosion susceptibility in physiological environments, and wide mechanical variations.

Inorganic/nonmetallic composites include ceramics, glasses, and glass-ceramic composites. This class has been used to make eyeglasses, diagnostic instruments, chemical ware, thermometers, and other products. Ceramics, in general, have high biocompatibility, corrosion resistance, and low electrical and thermal conductivity, making them ideal for use as implants.

Application of Biomaterial in Regenerative Medicine

Cardiovascular implants and devices

Mechanical and biological replacement valves are the two forms of cardiac replacement valves. Mechanical valves are further divided into three types: caged disc, single tilting disc, and bi leaflet valves. Homograft biological valves and heterograft bio prosthetic valves are two types of biological valves that differ in the source of tissue content.

RBC Cell Substitutes Made in the Lab

Blood replacement therapies, such as peri operative hemo dilution or resuscitation from hemorrhagic blood loss, could benefit from research into the creation of red cell substitutes. Artificial blood, unlike real blood, is designed solely to transport oxygen and carbon dioxide across the body. Blood replacement therapies, such as peri operative hemo dilution or resuscitation from hemorrhagic blood loss, could benefit from research into the creation of red cell substitutes. Artificial blood [2], unlike real blood, is designed solely to transport oxygen and carbon dioxide across the body.

Artificial Extracorporeal Organs

These machines filter the patient's blood outside of effective approach to perform motor and useful before returning it to the circulatory system. Gas and heat exchangers, dialyzers, aphaeresis machines, inartificial livers, and other devices are examples of these devices. All of these devices are intended to maximize material flow between body fluids and other fluids separated by a membrane. The use of inartificial liver devices [3] is on the rise.

References

1. Bhat S, Kumar A (2012). Biomaterials in Regenerative Medicine. J.Postgrad.Med 46:81-89.
2. Sarkar S (2008). Artificial blood. Indian J Crit Care Med 12:140-4.
3. Pless G. (2007). Artificial and bioartificial liver support. Organogenesis *3*: 20–24.