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BIOMATERIALS APPLICATION IN ORTHOPAEDICS

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ABSTRACT

Biomaterials technology progress has led to tremendous advances of its application for tissue and bone replacement. The aim of biomaterials application is for bone and tissue reparation purposes and ii leads to better quality life. In Orthopaedics, it is applied for osteosynthesis, spine implant, join replacement oncology, vamatology etc. The common types of biomaterials mainly used as orthopaedic implant arc metals, ceramics and polymers. Currently we have resistant materials to replace bones, and elastic materials capable to act as soft tissue substitutes. Stainless steels, commercially pure titanium, titanium base alloys, cobalt chrome alloys, polyethylene or methyl-mcthacrylatc are essential items in orthopaedic surgery and traumatology, Metal mostly used for plates, naifs, internal and external flxators. Ceramic is applied for porous coating, drug delivery system and reparation materials for bone. Each of the component have their own advantages and disadvantages. Intelligent biomaterials are another emerging possibility. Biocompatibility of the biomaterials is observed as prevention of the toxicity effect to host cells. However, complication such as infection, allergy, corrosion and implant failure cases are still a common problem in orthopaedic field. Several innovations such as tissue engineering, surface modification and nanotechnology had been discovered for better quality of implant material. In conclusion, biomaterials are an essential part of daily implant used by the orthopaedic surgeons to treat patients.