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Review

Study of corrosion in biocompatible metals for implants: A review

N.S. Manam [a], W.S.W. Harun [b, *], D.N.A. Shri [b], S.A.C. Ghani [b], T. Kurniawan [c], M.H. Ismail [d], M.H.I. Ibrahim [e]

[a] Institute of Postgraduate Studies, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300, Gambang, Kuantan, Pahang, Malaysia
[b] Green Research of Advanced Materials Laboratory (Grams Lab), Human Engineering Group, Faculty of Mechanical Engineering, Universiti Malaysia Pahang, 26600, Pekan, Pahang, Malaysia
[c] Corrosion & Fracture Focus Group, Faculty of Mechanical Engineering, Universiti Malaysia Pahang, 26600, Pekan, Pahang, Malaysia
[d] Faculty of Mechanical Engineering Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia
[e] Faculty of Mechanical and Manufacturing Engineering, Universiti Tun Hussien Onn Malaysia, 86400, Parit Raja, Batu Pahat, Johor, Malaysia

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ABSTRACT

High requirements in biomedical applications are yet to be met, equally in joint and bone substitution and the healing and renewal of bone weaknesses. The compatibility with the human body is the main precondition for the choice of biomaterials, which should thus have some significant properties that will be durable for use in the body without rejection. This paper concentrates, especially, on biocompatible metals, although there are also biomaterials made of polymers, ceramics, and composite materials. Considerations in selecting materials for biomedical applications such as biocompatibility, the high corrosion and wear resistance, and osseointegration are discussed. This paper reviews the applications of three main types of biocompatible metal, namely, stainless steels, cobalt-chromium alloys, and titanium and its alloys. The corrosion resistance of each alloy is in focus. It can be confidently declared that biocompatible metals will continue to be used as biomaterials in the future with further improvements and new revolutionary bio-functionalities in the use of metals.

Contents

1. Introduction 699
1.1. Chronological development of biocompatible metals 699
1.2. Definition of biomedical materials, biomaterials, and biological biomaterials 699
2. Important considerations on biocompatible metals 699
2.1. Biocompatibility of alloy 699
2.2. Corrosion resistance of implant materials 700
2.2.1. Corrosion of cardiovascular implants 701
2.2.2. Corrosion of dental implants 701
2.2.3. Corrosion of orthopaedic implants 702
2.3. Wear resistance of implant materials 703
2.4. Osseointegration 703
3. Significance of the human structure 703
4. Implantable materials 704
4.1. Metals and alloys 704
4.2. Stainless steel 704
4.3. Cobalt-chromium alloys 705
4.4. Titanium and its alloys 706
5. Conclusions 712

* Corresponding author.
E-mail address: sharuzi@ump.edu.my (W.S.W. Harun).

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