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Research Article

Bone Transplantation and Regenerative Therapies, New Pattern Discovery

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Abstract

Bone disease is one of the most occurred categories of human diseases that can cause great pain or movement incapability. Bone surgery, as an important kind of treatment needs to improve convention in skills, procedures and technology. System and technology broadening is relatively realistic for therapeutic progression. Many past challenge and obstacles have been narrowed in the past decade. A gradual improvement for bone surgery and replacement emerged in the clinic. Facing with difficult issue of these skills and technology, this editorial highlights some of new trends in this area.

Keywords: *Bone Surgery; Artificial Bones; 3-D Printer; Stem-Cell; Bone Replacement*

Introduction

Human bone is a vulnerable tissues facing with high-frequency outside pressure, risk factor attacks, and physical damages [1]. Bone mineral loss and fracture can cause persistent pain in general people [2-5]. In serious patients, normal physiological function damage or losses in some people need high-quality surgery, therapeutics or pain alleviations [6-12]. A plenty of treatment options are used to help patients in need.

Problem raising

In increasing cases of human tumors or others [13-15], patients need to take radical surgery, like replacement with artificial bones [16-17]. Many different skills and technology are associated with these treatment selections. New knowledge and techniques should be investigated by researches of animal and humans.

Methods

Many types of materials can be used in bone surgery. Though not popular now, surgery with bone materials and technology draw increasing attentions and bright future [14-20]. New therapeutic ideology and technical capability are proposed to improve bone disease treatment.

More recently, new biomedical problems are emerged in bone surgery.

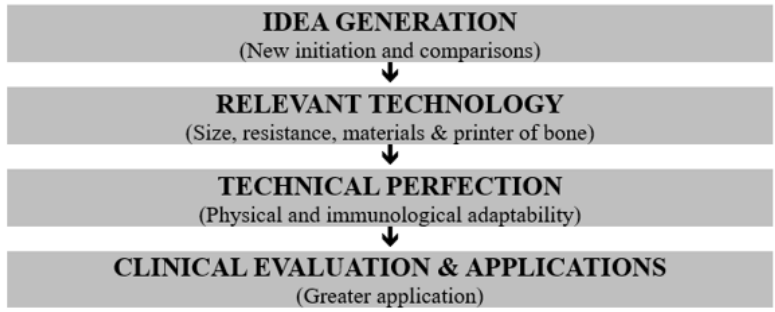

Figure 1: *Knowledge and technical progress.*

Results

Bone surgery varies greatly in protocol, materials and techniques. Despite of bright future for bone replaced surgery, there is a long way to go in practical utility. In search for new solutions for bone surgery, cutting-edge technology utility is the main choice [15-18]. More recently, regenerative materials for these implants are hotspot for these researches [18-20]. This is a promising pathway for dramatic progression of bone surgery. The publication in this area will be an maturity options in surgery.

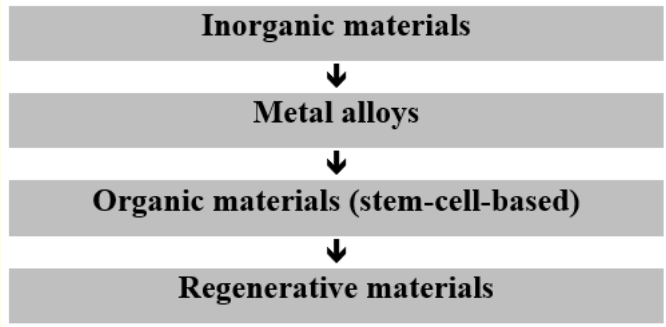

Figure 2: *Possible material innovation.*

Discussion

Bone surgery has a lot of different options. Novelty will be sought from different medical approaches. Excellence tissue and functional repairs will be future trends.

Major avenues

- Surgery skill promotion. It contains biophysics study of bone sizes, pressure endurance and structures [16].
- Printers for different types of bones. It contains information of different materials and molecules of bone against immune-response and manufacture feasibility [20].
- Surgical technical progress [21].

- Implant material innovation.
- Math- or intelligence integrations and assistance [8].
- Better service for assistance.
- Cost-reduction by new technology or systems.

Conclusion

In summary, bone surgery study and application will enter into new era. In order to do so, integration and specification are key issues.

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