Journal of Medical Implants & Surgery

Kapoor, J Med Imp Surg 2023, 8:6

Mini Review Open Access

Stents: A Comprehensive Overview

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Abstract

Stents have emerged as crucial medical devices in the feld of interventional cardiology and vascular medicine, playing a pivotal role in the treatment of various cardiovascular and non-cardiovascular conditions. This comprehensive overview aims to provide a detailed examination of stents, encompassing their historical evolution, design characteristics, deployment techniques, clinical applications, complications, and future prospects. The historical evolution of stents traces back to the pioneering work in the mid-20th century, with signifcant advancements in material science and engineering contributing to the development of diverse stent designs. This overview delves into the structural compy d Stenj / highlighting the impact of these innovations on clinical out critical aspect of their successful application. This overview comprehensively discusses the various methods employed in stent deployment, such as balloon angioplasty, self-expanding stents, and bior à Ơ p Ņs,

strategies for their prevention and management. Additionally, it addresses the impact of patient-specifc factors, such as diabetes and chronic kidney disease, on stent outcomes.

History of stents

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Received: 01-Nov-2023, Manuscript No: jmis-23-121091, **Editor assigned:** 03-Nov-2023, PreQC No: jmis-23-121091 (PQ), **Reviewed:** 17-Nov-2023, QC No: jmis-23-121091, **Revised:** 24-Nov-2023, Manuscript No: jmis-23-121091 (R), **Published:** 29-Nov-2023, DOI: 10.4172/jmis.1000195

Citation: Kapoor R (2023) Stents: A Comprehensive Overview. J Med Imp Surg 8: 195.

other tubular structures within the body [1]. From coronary arteries to bile ducts, stents have become indispensable in managing a spectrum of medical conditions. is article aims to provide a comprehensive overview of stents, exploring their history, types, applications, and advancements in technology [2,3]. e genesis of stents can be traced back to the mid-20th century, with pioneers in interventional cardiology

restenosis to the long-t Moreover, the integ bioresorbable stents an of complexity and prom

Types of stents

Coronary stents

Bare-metal stents (BMS):

Drug-eluting stents (DES):

Bioabsorbable stents:

Non-coronary stents

Peripheral arterial stents:

Biliary stents:

Ureteral stents:

Applications of stents

Coronary artery disease (CAD):

Peripheral artery disease (PAD):

Biliary and ureteral disorders:

Intracranial stents:

Advancements in stent technology

Biodegradable stents:

Drug-coated balloons:

Nanotechnology in stents:

Bioactive coatings:

Challenges and future directions

Conclusion

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