Nanorobotics Based Thrombolysis : Dissolving blood clot using nanorobots

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Content

Problem Statement

Inaccessible blood clots at deeper part of body, increasing fatality rates in patients.

"Nanotechnology in medicine is going to have a major impact on the survival of the human race."

-Bernard Marcus

INTRODUCTION

NANO TECHNOLOGY

-Norio Taniguchi-1974

Introduction

What is nano technology?

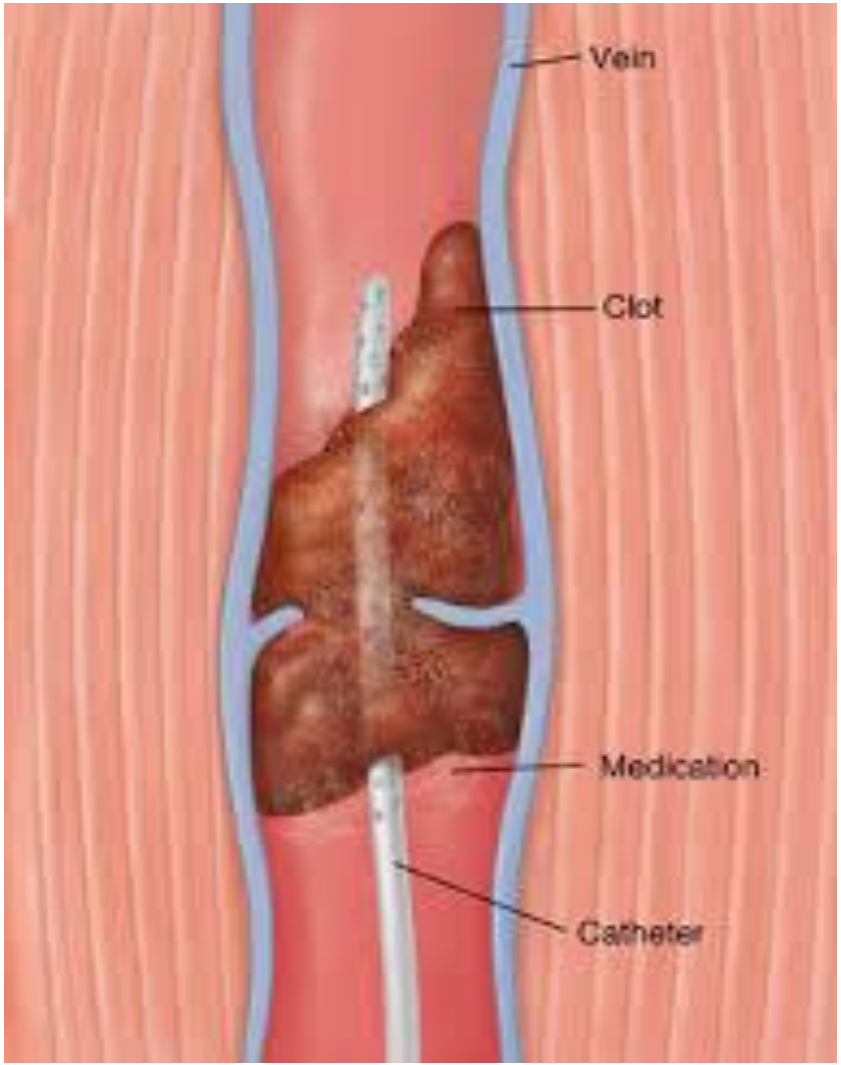
Nanorobot

- A nanorobot is 50-100nm sized small robot developed to carry out specific functions

Thrombolysis

What is blood clot?

Thrombolysis treatment for blood clot



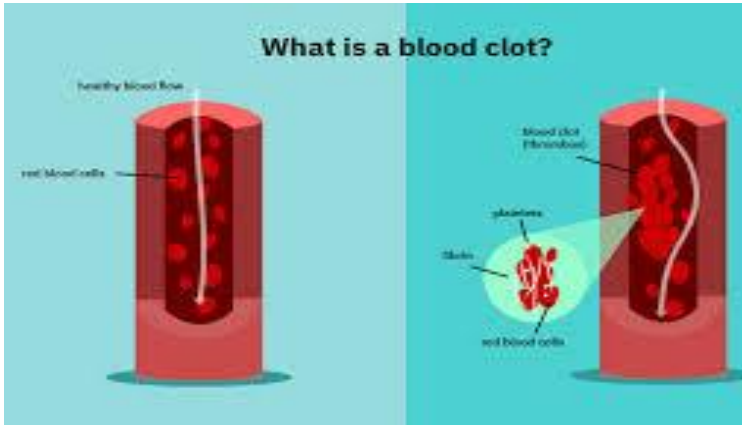
10 million cases of VTE occur annually across the globe

Nano Robotics For Thrombolysis

- Blood clots in deep arteries or veins, narrow internal sections of brain are accessed for treatment using nanorobots

Medications for Removing blood Clot

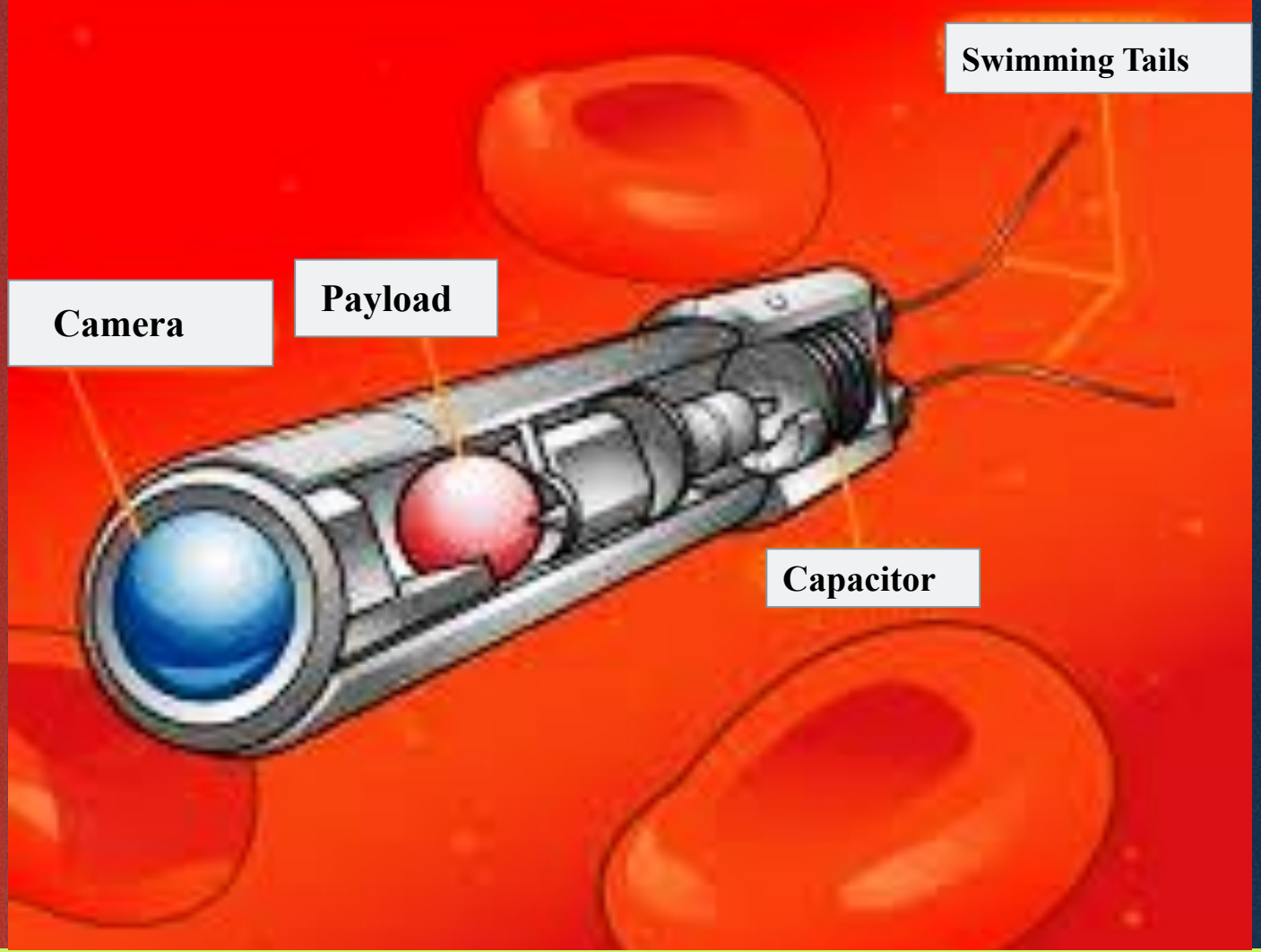
- Streptokinase.
- Alteplase.
- Reteplase.
- Tenecteplase.
- Urokinase.
- Prourokinase.
- Anistreplase(APSAC)



Medicines used for Thrombolysis

- tissue plasminogen activator (tPA)
- TNKase (tenecteplase)
- Urokinase

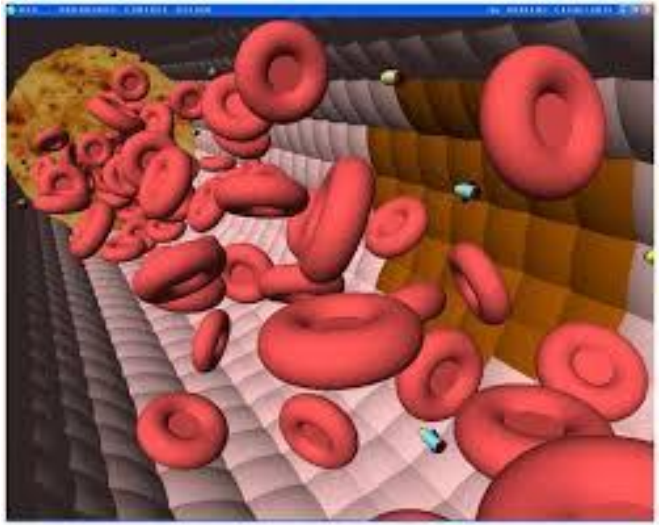
Nanorobot

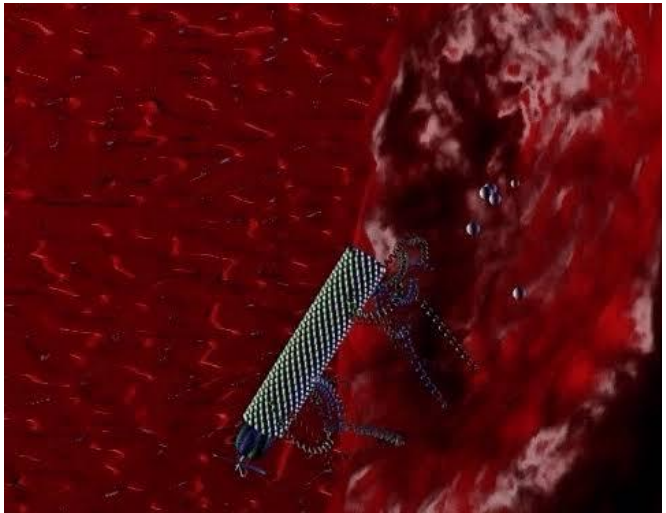


Procedure

Swamps of nanorobots with medications are passed to the destinations area

It consists of 3 stages.





Procedure

Stage 1

Injecting nanorobots via veins

Stage 2

Movement of nanorobots via bloodstream to area of action

Controlling via ultrasonic/electromagnetic field

Stage 3

Location of treatment area via chemical changes

Distribution of medicine

Pros and Cons

Pros

- Faster healing
- Quick action
- Precise
- Low chance of failure

Cons

- Chance for misuse
- Security issue
- Malfunction
- Underdevelopment

Conclusion And Future Scope

Advancement of medical sceince as well breakthroughs in nanotechnology now is becoming a reality for nanorobotic treatment of different human diseases and conditions

Introducing nanorobots and image processing to autonomously remove blood clots without any medications.

Reference

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Thanks!

Any questions?

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