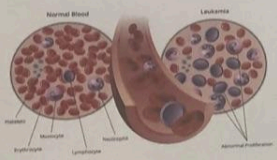
Dendrimers as a Cure for Acute Lymphoblastic Leukemia

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Research/Background

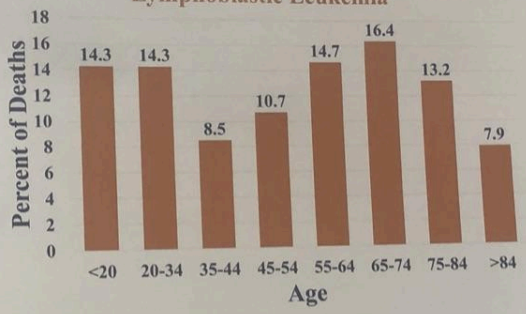
- Acute Lymphoblastic Leukemia occurs in the bone marrow or blood especially in children
- Symptoms include nau[illegible]r loss, diarr[illegible] bone pain, and weakn[illegible]
- Standard treatment inc[illegible]emotherapy or radiation therapy
- Doxorubicin and Cisplati[illegible]ommon drugs used to treat cancer
- Nanotechnology is generally used to treat diseases and prevent future health issues
- Dendrimers have been used to target and image certain agents within the body

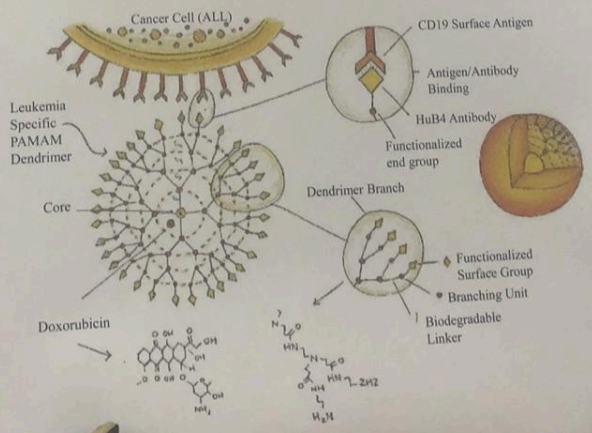


Significance

- ~24,000 patients die worldwide each year from ALL
- Results in the destruction of cancer cells without harming the healthy cells
- No toxic side effects
- Fewer hospital visits (ability to live a normal life)
- Improved precision: mortality rates decrease
- Modifications available to target any cancer cells surface antigen: future implications in medical field

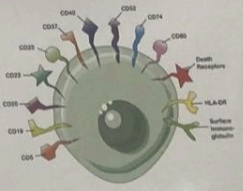
Percent of Deaths By Age Group: Acute Lymphoblastic Leukemia





Innovation

- Polyamidoamine (PAMAM) Dendrimers with surrounding functional groups
- Doxorubicin encapsulated in the Dendrimer, attached to the core
- Functionalized end groups attach to BH4 antibodies before injection
- Targets CD19 receptor, binds and performs endocytosis to the cancer cell
- Performs disintegration of the dendritic scaffold to destroy solely the target cell



Post Treatment

- Stem cells will have decreased in numbers : Stem Cell Transplant
- Analogous Transplant: stores patient's own stem cells, destroys cancer, returns to the body
- Allogeneic Transplant: donor stem cells through apheresis

Citations

American Cancer Society. (2019). What is acute lymphocytic leukemia (ALL)? Retrieved from https://www.cancer.org/cancer/acute-lymphocytic-leukemia/about/what-is-all.html

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