20TH CENTURY MEDICINE – X-RAYS & BLOOD TRANSFUSIONS

Medicine Through Time
TWENTIETH CENTURY

Development of X-rays before 1914:
- X-rays had been discovered before the war, but it was the First World War which really confirmed the importance of the x-ray in surgery
- More machines were manufactured and installed in major hospitals all along the Western Front
- X-rays helped to improve the success rate of surgeons
- They made it possible for surgeons to remove deeply lodged bullets and shrapnel that would have otherwise caused fatal infections

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Development of Blood Transfusion
- In the 1800s, mysteriously sometimes blood transfusions were successful and sometimes blood transfusions failed
- In 1900 Dr Karl Landsteiner discovered that there are different blood groups, and that transfusion only worked if the donor’s blood group matched the receiver’s blood group
- This discovery made blood transfusion practical. Although in the years before the war it was still performed with on-the-spot donors because doctors had no way of storing blood properly (it coagulated or clotted)

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Blood Transfusions in World War One
- During the First World War vast amounts of blood were needed, this made the use on-the-spot donors difficult.
- Scientists began to search for a better way of storing blood as often soldiers bled to death in the trenches before blood could get to them
- They discovered that the plasma (liquid part of the blood) could be separated from corpuscles (the tiny particles in the blood)
- The cells could be bottled, packed in ice and stored close to where they were needed. This made blood transfusion more practical

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Further Development of Blood Transfusion
- The discovery of a better method of storing the blood helped to save many lives during the First World War
- It didn’t just stop there...
  - Freeze dried plasma was developed in 1940
  - Anticoagulant solution (which stops the blood from clotting) for the storage of blood was developed in 1943 during World War II
  - The development of a method of freezing blood followed in 1944

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Do you know your stuff?

1. Give two surgical procedures that WW1 surgeons could carry out more successfully due to the development of x-rays
   - Removing bullets
   - Removing Shrapnel

2. When were blood groups discovered and who discovered them?
   - 1900 by Dr Karl Landsteiner

3. During WW1, what was the problem with on-the-spot donors?
   - Inpractical. Vast amounts of blood needed.

4. What did scientists try to develop to improve blood transfusions?
   - Better method of storing the blood
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