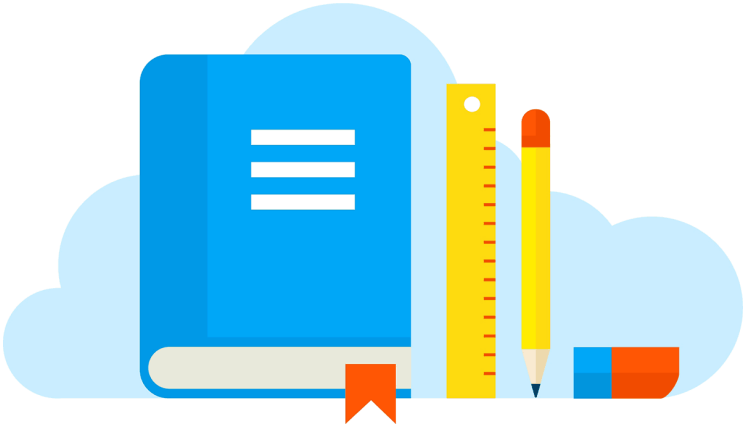

Class Notes

Part 3

The human ABO blood groups were discovered by Austrian-born

American biologist Karl Landsteiner in 1901.Landsteiner found that

there are substances in the blood, antigens and antibodies, that

induce clumping of red cells when red cells of one type are added

to those of a second type.He recognized three groups-A, B, and

O-based on their reactions to each other. A fourth group, AB, was identified a year later by another research team.Red cells of the A group clump with donor blood of the B group; those of the B group clump with blood of the A group; those of the AB group clump with those of the A or the B group because AB cells contain both A and B antigens; and those of the O group do not generally clump with any group, because they do not contain either A or B antigens.The

application of knowledge of the ABO system in blood transfusion

practice is of enormous importance, since mistakes can have horrible consequences. In 1914 sodium citrate was added to freshly drawn blood to prevent clotting. Blood was occasionally transfused during World War I, but three- quarters of a pint was considered a large amount. These transfusions were given by directly linking the vein of a donor with that of the recipient.

The continuous drip method, in which blood flows from a flask,

was introduced by Hugh Marriott and Alan Kekwick at the

Middlesex Hospital, London, in 1935.The discovery of the Rh

system by Landsteiner and Alexander Wiener in 1940 was made

because they tested human red cells with antisera (animal or

human serum containing antibodies specific for one or more

antigens) developed in rabbits and guinea pigs by immunization of

the animals with the red cells of the rhesus monkey Macaca

mulatta. Other blood groups were identified later, such as Kell,

Diego, Lutheran, Duffy, and Kidd. The remaining blood group

systems were first described after antibodies were identified in patients. Frequently, such discoveries resulted from the search for the explanation of an unexpected unfavorable reaction in a recipient after a transfusion with formerly compatible blood.

Notes: