SAWA UNIVERSITY

IMMUNOLOGY 1

Safety, introduction to serology.

Sawa University — جامعـــــة ســـــــاوة الاهلية

College of health and medical techniques — كليـــــة التقنيـــات الصحيـة والطبيـة

Department of Medical Laboratories — قسم تقنيات المختبرات الطبية

Third Stage — المرحلـــــــــــة : الثالثة

الجانب العملي — محاضرة رقم 1

Practical — Lecture No. 1

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Introduction to serology

Lecture Topics :-

1. Introduction

2- Components of the immune system:-

3- Antigen

4- Epitopes

5- Paratopes

6- Immunoglobulin (IG)

7- Laboratory animals

8- General Principles for Animal handling and Management

9- Experiment (2) antigen Preparation (bacteria)

AIMS OF LECTURE :-

1- Gives an idea about immunology and its items
2- Explain How immunity system works .
3- Explain the importance of lab animals in immunology
4- Explain how to handle the lab animals

Introduction

Immunity:-is The Sum Of All Naturally Occurring Defense Mechanisms That Protect Human From Infectious Disease.

Components Of The Immune System:-

A- Non-specific Immunity (Innate Immunity)

1. Physiologic Factors
2. Humoral Factors
3. Non-specific Cellular Factors

B- Specific Immunity (Adaptive Immunity)

1. Humoral Immunity: Specific Antibody Response.
2. Cellular Immunity: Specific Cell Mediated Immunity

ANTIGEN (AG): - is a foreign macromolecule or cell inter the body and cause a response characterized by production of antibody and specific t cell response.

EPITOPES:- are the sites either on or within the antigen, which the antibody and t cell react.

PARATOPES: is the area of antibody molecule that interact with epitope and it is complementary to epitope.

IMMUNOGLOBULIN (IG) OR ANTIBODY (AB):- they are glycoprotein present in serum and it produced by b cell lymphocytes in response to exposure to an antigen in vivo or in vitro.

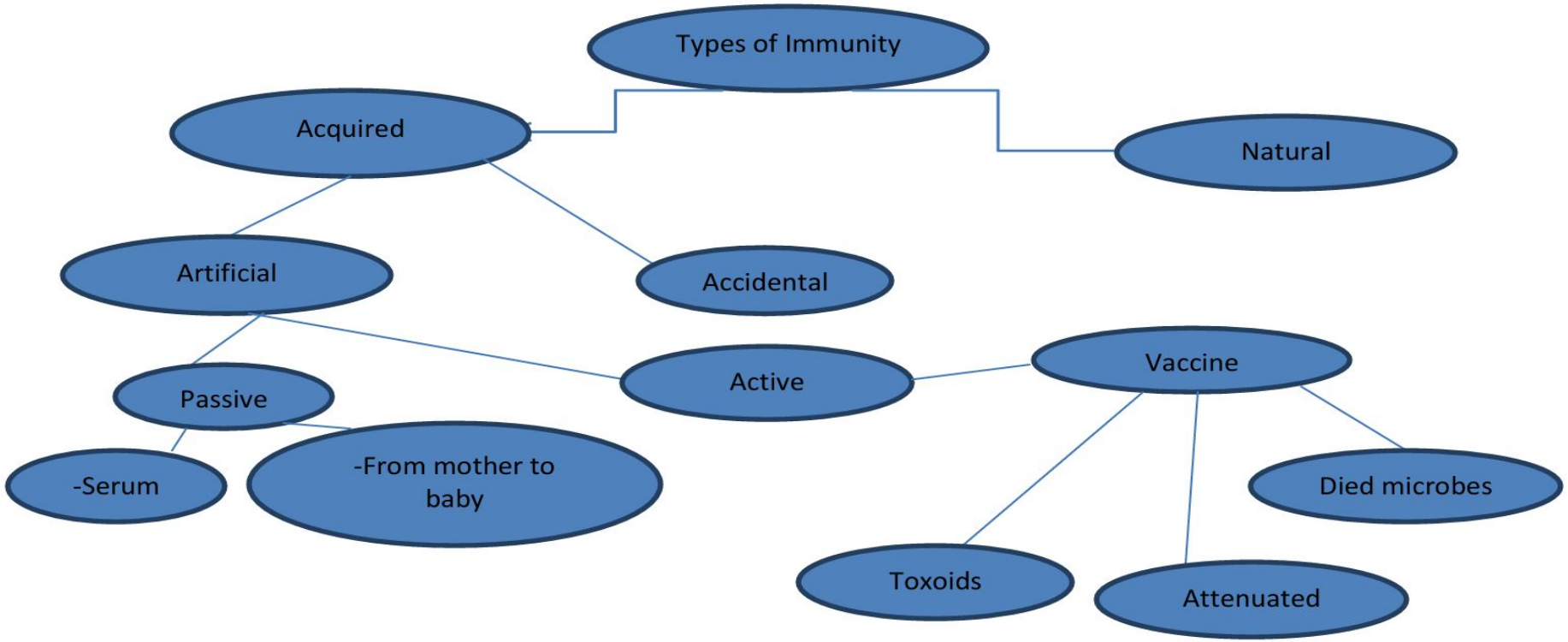

Figure 1: Types of Immunity

LABORATORY ANIMALS:

They are animals usually kept in laboratory under special conditions or animal house cages and used for scientific experiments like immunization testing.

Animals Include:

1. Small Animals : (E.G. Rabbits, Rat, Mouse, Monkey And Guinea Pigs), Usually For Microbiology And Immunology Experiments.

2. Large Animals : (E.G. Horse, Dog, Sheep And Cow), Usually For Vaccination And Immunization Experiments.

3. Birds (Chicken Is Most Common).

4. Fish.

IMMUNOLOGY LABORATORY

General principles for animal handling and management:

1. laboratory workers must make sure they are healthy before put them inside laboratory to avoid zoonotic diseases like(salmonellosis in chicken).

2. laboratory workers must follow all personal protection managements like wearing labcoat, gloves, and masks and avoid animal bite.

3. laboratory workers must pick up animal with the right way of handling and tightly because they are always trying to run.

4. shaving hair and fur in the site of injection and sterilize it with disinfectant.

5. cages should be dry and cleaned periodically and food with water mast

be always enough.

6. cages should be numbered and each animal must have a code number.

7. temperature should be balanced.

ROUTE OF INJECTION

DEFINED AS THE WAYS OF GIVING ANY MEDICATION OR FLUID TO THE BODY.

1) INTRAMUSCULAR (I.M.): MOST COMMONLY USED FOR GIVING ANTIBIOTIC FOR LONG ACTING TREATMENT.

2) INTRAVENOUS (I.V.): USED FOR FIRST AID, ANTIBIOTICS AND NUTRITION FLUIDS.

3) INTRADERMAL (I.D.): USED FOR SKIN TESTS LIKE ALLERGY TESTS.

4) SUBCUTANEOUS (S.C.): USED FOR INJECTION OF INSULIN IN PATIENTS

WITH INSULIN-DEPENDENT DIABETES MELLITUS.

5) INTRAPERITONEAL (I.P.): USED DURING PERITONEAL DIALYSIS AND PHAGOCYTOSIS

TEST IN MICE).

6) INTRA-CARDIAC (I.C.): USED FOR ADRENALINE INJECTION INTO THE HEART.

Any questions?