SAWA UNIVERSITY

VIROLOGY

SAMPLE COLLECTION &PREVENTION

Sawa University — جامعـــــة ســـــــاوة الاهلية

College of health and medical techniques — كليـــــة التقنيـــات الصحيـة والطبيـة

Department of Medical Laboratories — قسم تقنيات المختبرات الطبية

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الجانب العملي ...محاضرة رقم 2....

Practical Lecture No.2 ..

تدريسي المادة : م. د. سيف علي

Samples used for viral diagnosis

- The accuracy of viral diagnosis depends mainly on samples taken from patients in addition to clinical signs. There are several important changes that must be taken into account when collecting and transporting samples, for example :

1. The date of taking the sample.
2. The type and quantity of the sample taken.
3. The envelope and method of transporting the sample.

All of the above points are considered essential and important in the viral diagnosis process.

In cases of severe viral infections, it is best to take samples from the site of infection, for example;

-In cases of infection with (Viral Meningitis), the examination of samples (CSF) is better in knowing the infection,

-in cases of infectious to the skin or mucous membranes, the samples are from the surface of the skin or from the affected mucous membranes.

- Also, the virus titer (the number of viruses present in the area of infection) is higher at the beginning of the disease, so taking the sample in the first days of the onset of the disease or its symptoms is more appropriate to give positive and correct results

In cases of viral culture, this method needs more attention during the process of culture and method of transmission compared to other methods, because the vitality of the virus must be preserved. Blood samples suspected of carrying the virus must be kept at (4°C) when transporting, especially if the transfer takes an hour or more. But if the transfer is delayed more than 24 hours, the sample must be frozen at (-70°C).

In serological examinations; Serum samples should be obtained during the first days of infection and when the specific virus antibodies (Specific Virus Antibodies) are available, the sample alone will be effective, knowing that the levels of immunoglobulin's are constant in serum and plasma. If the samples are to be stored for days, they should be stored at (4°C), but if it is for a longer period, the sample • should be frozen at (-20 to -70°C).

Among the most clinical cases that require a laboratory examination to detect the virus are:

1. Respiratory infections.
2. Gastroenteritis.
3. Mumps.
4. Rubella.
5. Measles.
6. Herpes.
7. Cytomegalovirus.
8. Hepatitis.
9. Meningitis.
10. HIV infection.

TRANSPORTATION & STORAGE OF SPECIMEN

All the samples should be transported to laboratory in a sterile, leak proof container. Interval between collection of the specimen & its inoculation should be minimal.

All specimens collected for detection of viruses should be collected with aseptic technique and transported immediately to the laboratory by using transport media and should be placed in ice, specimens for viral isolation should not be kept at room or higher temperature.

Some antibiotics (e.g. penicillin, streptomycin, nystatin) should be added to viral transport media (VTM), especially when contamination with microbial flora is expected.

Viral transport medium :-

Viral transport medium is the solution used to preserve virus samples after collection so that they can be transferred and analyzed in the laboratory at a later time. Unless stored in a refrigerator at very low temperature or in liquid nitrogen, virus samples, especially RNA virus samples, are susceptible to decomposition.

Viral Transport Media (VTM) is used to:

1. Preserve viral infectivity within specimen.
2. Prevent specimen from drying .
3. Stop the growth of bacteria and fungi

Viral Transport Media

(VTM)

It contains:

-Saline (adequate ion concentration)

-Proteins (albumin or gelatin)

-Buffer (adequate pH)

-Antibiotics and fungicides

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Hence, there is a need for VTM; a chemical preservative that can be used at ambient temperature. Chemical components may include saline solution, phosphate buffered saline (PBS), or fetal bovine serum (FBS). VTM must be sterile to avoid introducing contamination to the specimen.

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Collection and transport of viral specimens General guidelines for proper specimen collection:

1.Specimen for detection of viruses should be collected as soon as possible after the appearance of the symptoms that is when the concentration of the virus is at its highest.

2. All specimens must be clearly labeled to identify their source (nose swab, throat swab……etc). This is especially important when more than one specimen is sent with one form.

3. All clinical specimens must be collected in clean sterile containers, which must be properly sealed . The outer portion of the container must not be contaminated.

4. Collect the specimen from the appropriate site .

5. Collect an adequate amount of specimen.

6.Correctly labeled (name, date, type of specimen) and with additional information (age, gender, clinical diagnosis, epidemiological data – vaccinations, recent trips, animal bites etc.)

Any questions?