Lab 8: Anti-streptolysin O (ASO/ASL) Test

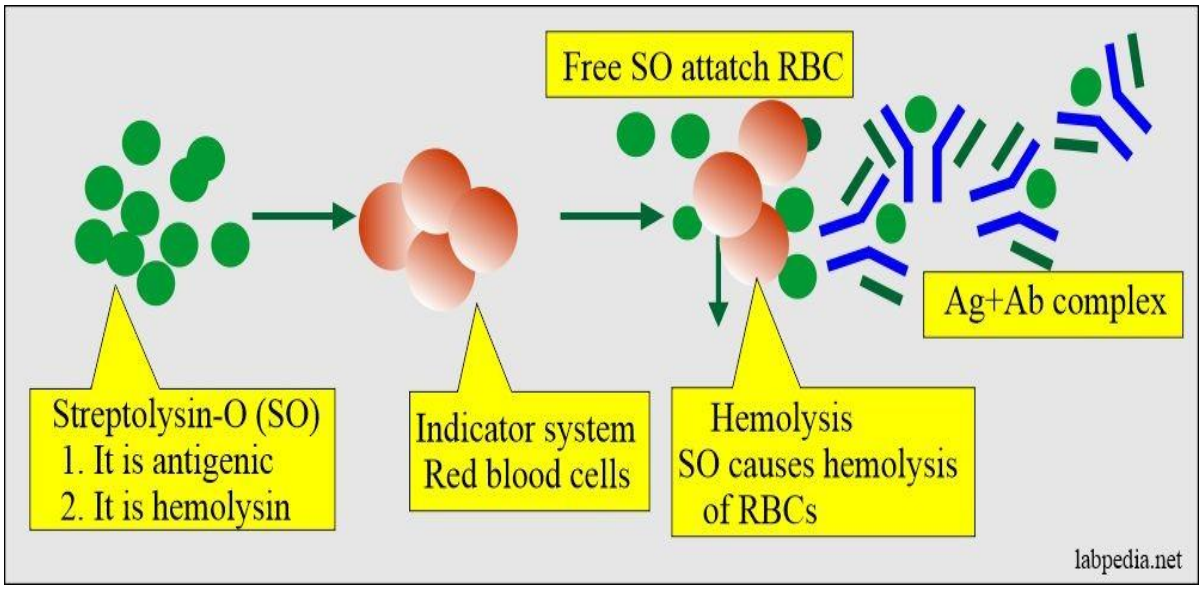
Msc. Alaa khalaf Bediwi

Anti Streptolysin O test (ASO titer)

Anti-Streptolysin O (ASO): is the antibody made against streptolysin O, an immunogenic, oxygen-labile hemolytic toxin produced by most strains of group A and many strains of groups C and G streptococci.

The ASO titer test: is a blood test that checks for a strep infection, The "O" in the name stands for *oxygen-labile*; the other related toxin being oxygen-stable streptolysin-S. The main function of streptolysin O is to cause hemolysis (the breaking open of red blood cells) — in particular, beta-hemolysis. Increased levels of ASO titer in the blood could cause damage to the heart and joints.

Arising levels of ASO can indicate past or present infection. Since these antibodies are produced as a delayed antibody reaction to the above-mentioned bacteria, there is no normal value. The presence of these antibodies indicates an exposure to these bacteria.



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Modes of transmission

- ✓ By direct person-to-person transmission.
- ✓ By saliva or nasal secretions from an infected person.

What is poststreptococcal disorder?

- ✓ Poststreptococcal disorder is a group of autoimmune disorders thatoccur after an ***S. pyogenes*** infection.
- ✓ Antibodies that are formed to fight ***S. pyogenes***, can be wrongly destroying normal cells.
- ✓ Poststreptococcal disorders can affect the heart, kidney, skin, brain, orjoints.

❖ **Disorders of poststreptococcal including:**

- Acute rheumatic fever
- Glomerulonephritis
- Myalgia
- Bacterial Endocarditis
- Tics

❖ **Symptoms of poststreptococcal disorder including:**

- Sore throat
- Swollen tonsils
- Tender lymph nodes
- Fever
- Headache
- Red skin rash and reddened tongue (scarlet fever)

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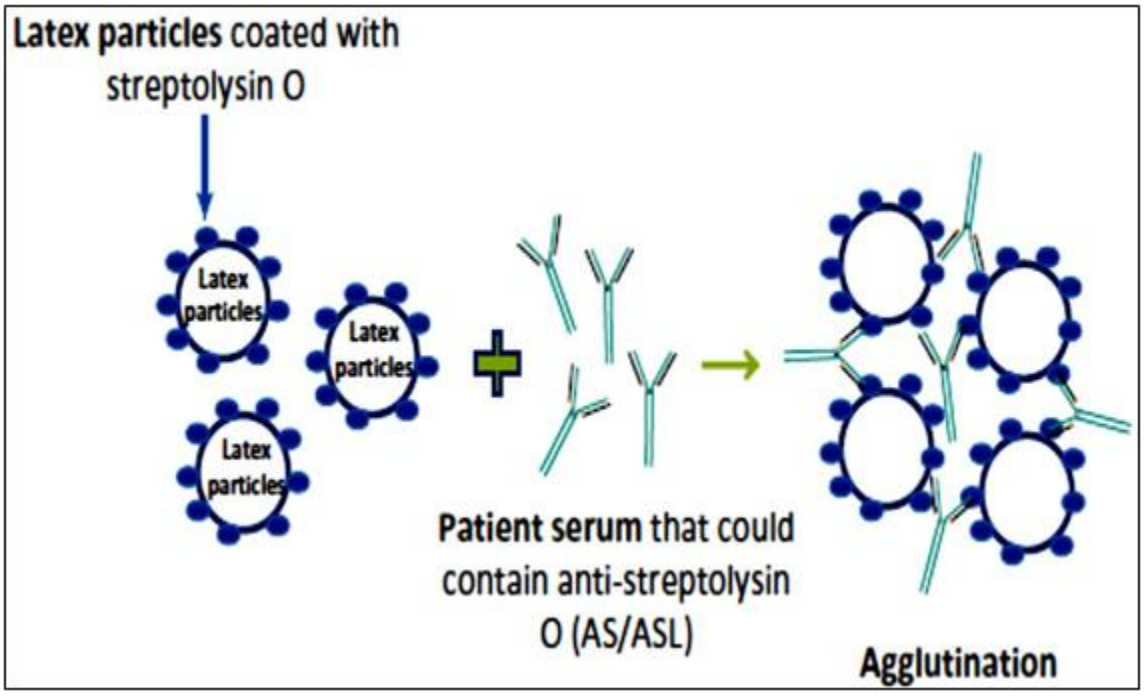
➢ Principle:

The latex particles coated with Streptolysin-O were used for the detection of antibodies in the patient's serum during S. pyogenes infection.

When the latex reagent is mixed with serum containing antibodies to streptolysin-O, agglutination occurs. The latex reagent has been adjusted so that agglutination will take place only when the level of antibodies to streptolysin-O is greater than 200 IU/ml, a level determined by epidemiological and clinical studies to be indicative of disease.



Requirements

- Latex ASO reagent kit.
- Normal saline.
- Patient serum.
- Positive and negative serum control.
- Test plate or dark slide.

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Slide agglutination test (Qualitative test):

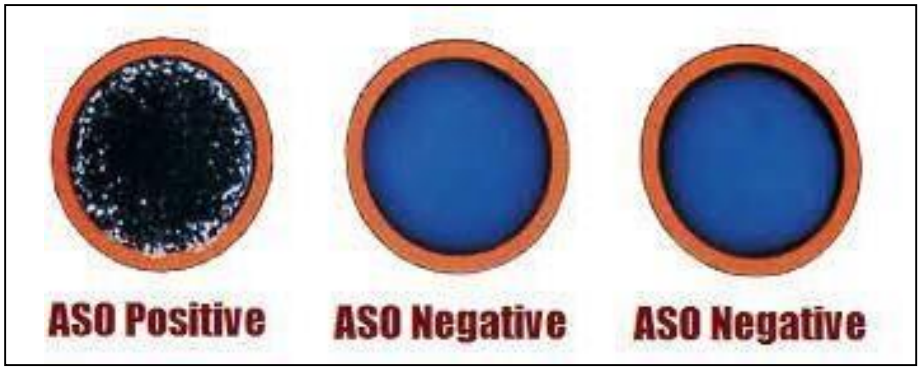
Procedure:

1- Bring the reagent and sample at room temperature and mix the reagentvial gently before use.
2- Put 1 drop (50µl) of the patient serum on the card.
3- Add 1 drop of latex reagent to the serum and mix them.
4- Rotate the slide slowly.
5- Observe immediately under a light source for any agglutination.
6- Report the result.

Reading the results:

Nonreactive: No visible agglutination = **Negative.**

Reactive: Any agglutination visible = **Positive.**



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- **Positive samples** are required to be **re-tested** in **semi-quantitative tests**, which use the same principle and steps as above with only one difference: that the patient serum should be **serially diluted**.

Semi-quantitative Test

1- Dilute sample with saline as follow:

Tube	Dilution	Composition	ASO titer IU/ml
1	**1:2**	50 µl of serum + 50 µl of saline. Mix	**400**
2	**1:4**	50 µl from tube 1 + 50 µl of saline. Mix	**800**
3	**1:8**	50 µl from tube 2 + 50 µl of saline. Mix	**1600**
4	**1:16**	50 µl from tube 3 + 50 µl of saline. Mix	**3200**

- **Reading the results:**

✓ **Titer:** is the highest dilution giving agglutination

✓ The result of ASO (IU/ml) can be obtained by **multiplying** the titer ofthe dilution by the **minimum detectable unit (200).**

For example: The titer =1:4

ASO concentration = 4 x 200 = 800 IU/ml

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