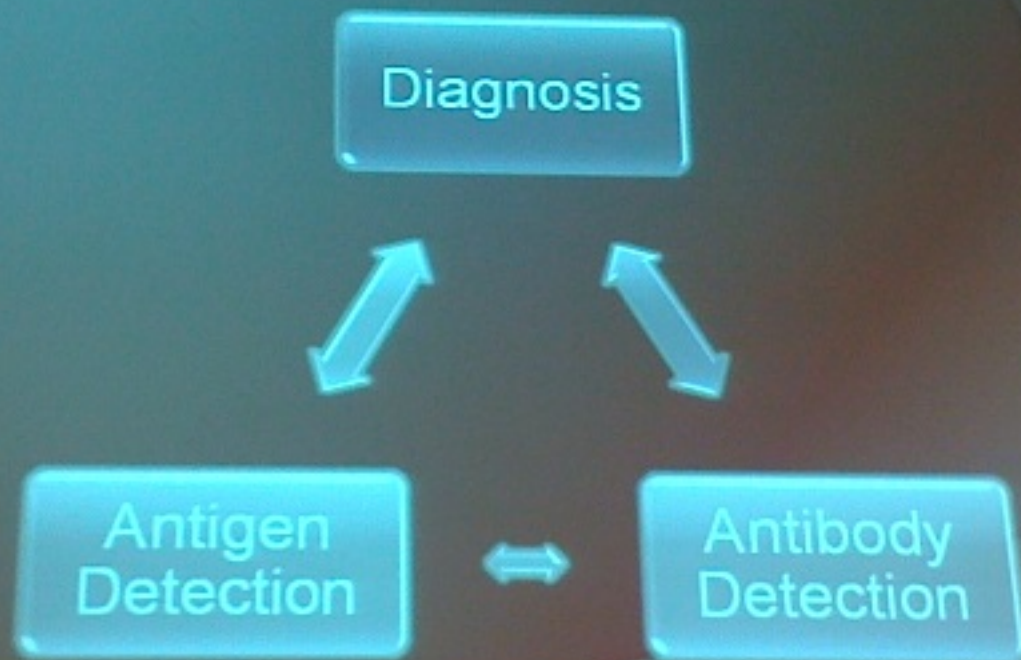


SERODIAGNOSIS OF INFECTIOUS DISEASES

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Diagnostic Strategies



Detection of Specific antigens is Definitive and Preferable to Serological Procedures

- Isolation and culture
- Observation by microscopy
- Detection of pathogen-specific nucleic acid (PCR)
 - Example: TB
 - serology is of no practical value but all other identification used.

Limitations of Serological Procedures

- **Many antigenic sub-types:**
 - *Streptococcus pneumoniae* (90)
 - Adenoviruses (52)
 - Rhinoviruses (110)
- **High pre-existing levels of Abs:**
 - Immunisation
 - Endemic disease (Malaria)
 - Occupation

Limitations - Continued

- **Ab production compromised:**

- Transiently, as in neonates and in those receiving immunosuppressive therapy
- Permanently, as in primary and acquired Ab-deficiency syndromes

Limitations - Continued

- ◉ **Acute phase of the disease precedes the production of specific antibodies**
- ◉ **Not all infections induce systemic Ab response**

Serodiagnosis is of Value in:

- Syphilis
- Brucellosis
- Pneumonia caused by *Mycoplasma pneumoniae*.
- Chlamydial diseases
- Rickettsial diseases
- Toxoplasmosis
- HIV and HV infections

Acute Infection

- ◉ **IgM:** Detectable within days
Peak at 7-10 days
- ◉ **IgG:** Detectable 7-14 days after
onset of infection

**Significant increases in titer in follow-up
samples**

Chronic Infection

- ◎ **IgG:** significant increase in titer 4-fold above basal

Chlamydial serology: IgG, IgA, IgM

Serological Procedures which can Detect Different Types of Antibodies

- **Indirect Immunofluorescence (IIFA)**
 - Glass slide coated with Ag
 - Fluorochrome conjugated to anti-human Ig
 - UV microscope
- **Enzyme Linked Immunoassay (ELISA)**
 - Microtiter well coated with Ag
 - Enzyme conjugated to anti-human Ig
 - Colour change measured by spectrophotometer

Syphilis

Difficult to isolate and culture

Serology effective for diagnosis and monitoring treatment

	RPR	TPHA	FTA Abs	
			IgG	IgM
1.	1:4	Neg	Neg	Neg
2.	1:64	Pos	Pos 3+	Pos +1/ Neg
3.	Neg	Pos	Pos 2+	Pos 1+
4.	Neg	Neg	Neg	Neg
	Cardiolipins	<i>Treponema pallidum</i>		

Chlamydia

C. Psittaci, C. Trachomatis, C. Pneumoniae
Obligate intracellular organism
IIFA IgG, IgA, IgM Serology

<i>Chlamydia pneumoniae</i> serology			
	IgG	IgA	IgM
1.	1:128	1:16	1:20
2.	1:512	1:64	Neg
3.	1:64	Neg	Neg

Normal values: IgG: <1:64, IgA: <1:16, IgM: <1:10

Tick bite fever

R. conorii, *R. typhi*, *R. rickettsii*, *C. burnetii*
Very small rods, difficult to observe or stain
Intracellular organism

<i>Rickettsia conorii</i> serology		
	IgG	IgM
1.	1:128	1:64
2.	1:512	Neg
3.	Neg	Neg

Normal values: IgG: <1:64, IgM: <1:64

Tick byte fever

C. burnetii

aka Q-fever influenzalike symptoms, pneumonia ensues in 50% of cases

<i>Coxiella burnetii</i> serology				
	Phase II		Phase I	
	IgG	IgM	IgG	IgM
1.	1:512	1:256	Neg	1:64
2.	1:256	Neg	1:128	1:512

Normal values: IgG/IgM: <1:64