# Internal medicine

Sheet no. 5

Refer to slide no. 4

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* **The aim of this lecture is to know who are the patients that need to be given antibiotics before doing dental procedures.**

ASD: Arterial septal defect; an abnormality in the heart where there is a hole between right and left atriums.
Infective Endocarditis: is the infection of heart valves and the endometrium.

* Frequency of ASD is more In Females than in Males.
* VSD : is more common in Males than Females.
* Bioprosthetic valves (tissue): More common in Males than Females
* Valves are classified into :
1. Tissue valves: and they are taken either from pigs or cows.
2. Metalic valves.
* PDA: is more common in Females than in Males.
* “PDA (Patent ductus arteriosus): Patent ductus arteriosus (PDA) is a heart problem that occurs soon after birth in some babies. In PDA, abnormal blood flow occurs between two of the major arteries connected to the heart. Before birth, the two major arteries—the aorta and the pulmonary artery—are connected by a blood vessel called the ductus arteriosus. This vessel is an essential part of fetal blood circulation. Within minutes or up to a few days after birth, the vessel is supposed to close as part of the normal changes occurring in the baby's circulation. In some babies, however, the ductus arteriosus remains open (patent). This opening allows oxygen-rich blood from the aorta to mix with oxygen-poor blood from the pulmonary artery. This can put strain on the heart and increase blood pressure in the lung arteries. “

**Infective endocarditis**: Infection of endothelium of heart (including but not limited to the valves), There are types:

1) Acute Bacterial Endocarditis (ABE).

2) Subacute Bacterial endocarditis (SBE).

* ABE: Infection of normal valves with virulent organism (very strong organisms), eg: *S.aureus*, group A or other β-hemolytic strep, *Strep pneumo.* So in ABE: the patient has normal valves but under some circumstances infection has occurred to the valves by very strong organisms.
* SBE: Indolent infection with less virulent organism (eg, S.viridans); often abnormal valves. As an example: if a patient has Bicuspid aortic valves,(which is a common congenital abnormality, because normally people have tricuspid aortic valves) .

**Predisposing factors** :

* **Abnormal valve:**

1) High risk patients:

* 1. Prior endocarditis
	2. Rheumatic valvular disease : (which is common in India and in Iraq , where in this condition the patient had a strep throat [a sore throat with fever caused by streptococcal infection] , when he was a teenager and he wasn’t treated properly, and then during his 30’s-40’s the infection reached the valves, and got the Rheumatic valvular disease.)
	3. AoV: Aortic valve disease (Bicuspid valve).
1. Medium risk patients: As in Mitral valve disease (MVP: mitral valve prolapse), it’s a condition where mitral valve (leaflet) is redundant and leakage of blood happens as a result. Or patients with Hypertrophic cardiomyopathy (HCMP).
* **Abnormal risk of bacteremia:**
1. This happens in IDU (intravenous drug users), who take cocaine or heroin as IV injections, these people are in risk for Infective endocarditis.
2. Hemodialysis patients: These patients have derma catheters in their veins, where they take shots in what is called AVF (arteriovenous fistula), and these catheters need 6 weeks to start working, so these patients are in risk for IE.
3. Diabetic patients.
4. Patients with intracardiac devices (Pacemakers: a regulator of heart beats).
* **Duke Criteria: Criteria that is used to diagnose IE**.
* (We have to know the table).
* New valvular regurgitation: leakage in the valve.
* ICH: intracranial hemorrhage.
* Mycotic aneurysms: Aneurysms in brain.
* Roth spots: retinal hemorrhage.
* Osler’s nodes: painful nodules on hands.
* GN: Glomerulonephritis.

Slide No. 7:

**We need to know the numbers in BOLD.**

* Non-IVDA: non-intravenous drug abusers.
* Most common organisms found in Non-IVDA: S.viridians & S.aureus.
* Most common organisms found in IVDA: S.aureus.
* In PVE: most common organisms found in Early PVE: S.aureus , And in Late PVE: S.viridians, S.aureus, and S.epidermidis have the same percentage.
* **Clinical manifestations**:
* Persistent bacteremia: Either 1)Acute (manifested in Fever (80-90%), chills, night sweats)

 2) Subacute (manifested in Anorexia, weight loss, and mainly fatigue)

* **Physical exam:**

HEENT: Head, Eyes, Ears, Nose, and Throat.

* Slide 12: shows Roth spots: Retinal hemorrhage with pale centers.
* Slide 13: Sometimes infection occurs around and on pacemakers, with pus discharge, and this is the worst case in IE.
* Slide 16: This is an echo for the heart (left side of the heart is larger than the right side , atriums in bottom and ventricles on top)
* Slide 17: Vegetation on mitral valve: collection of pus, cells, and bacteria which destruct the valve.

The arrow on the upper left picture points to the vegetation of the valve in ECHO.

* Slide 19: There is vegetation also on the valve, and as a result of this the whole valve will be destructed and the patient goes into a cardiogenic shock and die.
* Infective Endocarditis is not diagnosed only by Cardiologists, but also Cardiac surgeons and Infective disease specialists are involved too. And after diagnosis, blood cultures and other tests should be made to confirm the results.
* Slide 21, 22 are not included.
* Finally, Who are the patients that need to take prophylaxis ?
* Patients with Cardiac conditions: as prosthetic valve, previous infective endocarditis, CHD, and patients with transplanted heart, and need to have dental and respiratory procedures are given (Oral : amoxicillin 2g , 30-60 min before the procedure only , if the patient can't take the antibiotic Per Os , Amp 2g is given IV/IM or cefazolin or Cftx (ceftriaxone which is Rocephin 1g IM/IV ), if the patient is allergic or Penicillin, Clindamycin 600 mg is given PO/IM/IV .)