

Thromboplastin time, Prothombin time,PT

General:

The prothrombin time tests the exogenous coagulation system (factors VII, X, V, II and I). PT indirectly reflects the protein synthesis activity of the liver since all these factors are synthesized in the liver. Vitamin K antagonists (coumarin/warfarin) disturb the synthesis of four procoagulatory effective coagulation factors II, VII, IX and X.

Indication: Screening test for plasmatic coagulation disturbances (factor defect of the prothrombin complex, factor V, fibrinogen, at dysfibrinogenemia), monitoring vitamin K antagonist therapy (coumarin, marcumar), monitoring in vi-tamin K deficiency and liver diseases.

Preanalytics: citrate blood in citrate-monovette, fill monovette up to the mark! Send immediately to the laboratory! Optional for dispatch: send frozen citrate plasma.

Material: 3.0 ml citrate plasma, **frozen**

Stability: 15 to 25°C (RT) within 24 hours. If the testing is not completed within 24 hours, platelet -poor plasma should be stored frozen at -20 °C or below for short term storage (up to 4 weeks) or -70°C for long term storage. Frozen plasma should be rapidly thawed at 37°C, then gently mixed and tested immediately.

TAT: same day, FML

Method: COAG

Units: %

Ref.- range: 70 – 120

Note: The WHO recommended INR-value (International Normalized Ratio) is valid as a standardized result. The international sensitivity in-dex (ISI) value compares to a reference thromboplastin. ISI values at approx. 1.0 highly correspond to the WHO standard. The ISI value is range- and device-dependent and must be declared in instruction leaflets. Calculation: $INR = [TPZPat (sec)/TPZCal (sec.)]^{ISI}$

Example: $INR = [patient: 32.5 sec./normal: 11.1 sec.]^{0.96} = 2.80$

The ratio anticoagulant (sodium citrate 3.8%) to blood must be exactly 1+9!

Relationship between INR and Prothrombin time (Quick), % values

INR	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
%	100	51	33	25	20	16	14	12	11

Recommendations from the Australasian Society of Thrombosis and Hemostasis (2000):

Range of international normalized ratio (INR) recommended for specific applications of warfarin therapy*

Condition	INR range
Preventing DVT (high risk patients, like those who have had hip replacement)	2.0-3.0
Therapy after DVT or pulmonary embolism	2.0-3.0
Preventing systemic embolism - Atrial fibrillation - Valvular heart disease - After myocardial infarction - Tissue heart valves (first 3 months)	2.0-3.0 2.0-3.0 2.0-3.0 2.0-3.0
Bileaflet mechanical heart valve (aortic)	2.5-3.5
Mechanical prosthetic heart valve (high risk)	3.0-4.5
Preventing recurrence of myocardial infarction	3.0-4.5
Thrombosis in antiphospholipid antibody syndrome	3.0-4.5

DVT = deep vein thrombo-sis

- Based largely on the 5th American College of Chest Physicians Consensus Conference and consistent with current recommendations of the British Society for Hematology.

Risk of major bleeding (% per annum) and international normalized ratio (INR), findings of two studies.

Risk of ischemic stroke in patients with atrial fibrillation (AF), grouped by age and other risk factors* (derived from Laupacis et al.)

INR	Study 1	Study 2	Risk categories	Patients affected per an-num
<2.0	3%	0	<i>Lone atrial fibrillation†</i>	
2.0-2.9	2%-3%	1%	Age < 60 years	0
3.0-3.9	2%-3%	3%	Age 60-69 years	1.6%
4.0-4.9	4%	4%	Age 70-79 years	2.1%
5.0-5.9	5%	50%	Age >= 80 years	3.0%
>= 6	5%-13%		<i>Age < 65 years</i>	
			No risk factors	1.0%
			One or more risk factors	4.9%
			<i>Age 65-75 years</i>	
			No risk factors	4.3%
			One or more risk factors	5.7%
			<i>Age >75 years</i>	
			No risk factors	3.5%
			One or more risk factors	8.1%

- Hypertension, diabetes, previous stroke or transient ischemic attack.
- Atrial fibrillation without transient ischemic attack or stroke, myocardial infarction, hypertension or heart failure.

For complete list of laboratory test offered at Freiburg Medical Laboratory, please visit <http://www.fml-dubai.com/parameter-listings/>