**Thrombotic thrombocytopenic purpura**

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**Summary**

Thrombotic [thrombocytopenic purpura](https://next.amboss.com/us/article/8q0OZh#Z8ea9a90b2120165ce76b1ebb3169ac4d) (TTP) is a [thrombotic microangiopathy](https://next.amboss.com/us/article/rL0f_g#Z9ec7e15d35674b4e19b7939527107d08), a condition in which microthrombi, consisting primarily of [platelets](https://next.amboss.com/us/article/ln0vtg#Z53cb67a3181e33f55118053e63485c2e), form and occlude the [microvasculature](https://next.amboss.com/us/article/ZK0ZUS#Zfbcdcd5e64220749208ce7e464c52612) (i.e., the [arterioles](https://next.amboss.com/us/article/ZK0ZUS#Z231d06cc8e7e5905367bc711c97a4b72) and [capillaries](https://next.amboss.com/us/article/ZK0ZUS#Zccc525184d694d883090fca453c06718)). TTP occurs primarily in adults and is typically due to acquired [autoantibodies](https://next.amboss.com/us/article/x50Emg#Z07ff4a8efdae49ba17ed2b65e3db534d) against a [proteolytic enzyme](https://next.amboss.com/us/article/8K0ORS#Ze4d4c25e18b081c5d5f3eb8ec48c6de5) ([ADAMTS13](https://next.amboss.com/us/article/xT0EG2#Zb67d2df2d3f707b2c2934f03c6ae307b)) that cleaves [von Willebrand factor](https://next.amboss.com/us/article/8T0Os2#Z6848bc53710e734d7e1fef22e311eaf8) ([vWF](https://next.amboss.com/us/article/8T0Os2#Z6848bc53710e734d7e1fef22e311eaf8)). The classic pentad of findings ([fever](https://next.amboss.com/us/article/j50_Pg#Za5de83449ff6a749e6c1348b93b1f3b1), neurological abnormalities, [thrombocytopenia](https://next.amboss.com/us/article/wT0hG2#Zdab14a350ac311c7a2589ab7d48358ad), [microangiopathic hemolytic anemia](https://next.amboss.com/us/article/rT0fH2#Zda0b304b42e7d61e473888461c687343), and impaired renal function) is seen in a minority of patients. TTP is a hematologic emergency. If TTP is strongly suspected and initial laboratory tests support the diagnosis, treatment with plasma exchange should begin immediately, as the condition may be fatal if left untreated.

NOTES

FEEDBACK

**Epidemiology**

* Primarily adult individuals (median age at diagnosis: ∼ 40 years)
* **More common in women** and in Black populations

Epidemiological data refers to the US, unless otherwise specified.

NOTES

FEEDBACK

**Etiology**

* [**ADAMTS13**](https://next.amboss.com/us/article/xT0EG2#Zb67d2df2d3f707b2c2934f03c6ae307b)**deficiency/inhibition** [1]
  + **Acquired TTP (∼ 95%)**: [**autoantibodies**](https://next.amboss.com/us/article/x50Emg#Z07ff4a8efdae49ba17ed2b65e3db534d)**against**[**ADAMTS13**](https://next.amboss.com/us/article/xT0EG2#Zb67d2df2d3f707b2c2934f03c6ae307b) (see “Pathophysiology” below)
  + Congenital TTP (∼ 5%): [gene mutations](https://next.amboss.com/us/article/y50d5g#Zd46cdaeb8b7dedcfe18f485c50393656) resulting in deficiency of [ADAMTS13](https://next.amboss.com/us/article/xT0EG2#Zb67d2df2d3f707b2c2934f03c6ae307b)
* [Risk factors](https://next.amboss.com/us/article/ps0LDh#Zbc0d0ff153bc5c7a27589815d0c842fd) [1]
  + Systemic disease: cancer, [HIV](https://next.amboss.com/us/article/mf0V52#Z318c3fdbcf10c252f3453a2394e29d91), [SLE](https://next.amboss.com/us/article/dT0op2#Zc038efa4f85b330e4a8d1d0224d5f1a9), infections
  + [Pregnancy](https://next.amboss.com/us/article/dO0orT#Zeba6f488931dd463917047bb9c5f18f4)
  + [Drugs](https://next.amboss.com/us/article/OH0Iqh#Zb6092b13eaa87d56098de697bde43bdc)

NOTES

FEEDBACK

**Pathophysiology**

TTP is a **thrombotic microangiopathy**, a condition in which microthrombi form and occlude the [microvasculature](https://next.amboss.com/us/article/ZK0ZUS#Zfbcdcd5e64220749208ce7e464c52612). The other main [thrombotic microangiopathy](https://next.amboss.com/us/article/rL0f_g#Z9ec7e15d35674b4e19b7939527107d08) is [hemolytic uremic syndrome](https://next.amboss.com/us/article/rL0f_g#Z759bb631d23a3535c2b55dfd91c4807b) ([HUS](https://next.amboss.com/us/article/rL0f_g#Z759bb631d23a3535c2b55dfd91c4807b)). Although TTP and [HUS](https://next.amboss.com/us/article/rL0f_g#Z759bb631d23a3535c2b55dfd91c4807b) share similarities in both pathophysiological findings and clinical features, these conditions differ in etiology; TTP, unlike [HUS](https://next.amboss.com/us/article/rL0f_g#Z759bb631d23a3535c2b55dfd91c4807b), is caused by a deficiency of [ADAMTS13](https://next.amboss.com/us/article/xT0EG2#Zb67d2df2d3f707b2c2934f03c6ae307b).

1. [Autoantibodies](https://next.amboss.com/us/article/x50Emg#Z07ff4a8efdae49ba17ed2b65e3db534d) or [gene mutations](https://next.amboss.com/us/article/y50d5g#Zd46cdaeb8b7dedcfe18f485c50393656) → **deficiency of ADAMTS13**  (a metalloprotease that cleaves [von Willebrand factor](https://next.amboss.com/us/article/8T0Os2#Z6848bc53710e734d7e1fef22e311eaf8))
2. ↓ Breakdown of [vWF](https://next.amboss.com/us/article/8T0Os2#Z6848bc53710e734d7e1fef22e311eaf8) multimers → [vWF](https://next.amboss.com/us/article/8T0Os2#Z6848bc53710e734d7e1fef22e311eaf8) multimers accumulate on [endothelial](https://next.amboss.com/us/article/Io0YWS#Z5497a0f4058d523c955929ca6a14200a) cell surfaces
3. [Platelet adhesion](https://next.amboss.com/us/article/8T0Os2#Z1bb983e4f09f5f7efad91197cb9f7b18) and microthrombosis
4. Microthrombi → fragmentation of [RBCs](https://next.amboss.com/us/article/ln0vtg#Z79ddb9a0dd4dbd469d90aef3521a5f94) with [schistocyte](https://next.amboss.com/us/article/WS0PA2#Z3249b305fc55e5da5556db2c3f296fbb) formation → [hemolytic anemia](https://next.amboss.com/us/article/rT0fH2#Z958cf76990e9ccf502442ead34e224b0)
5. Arteriolar and [capillary](https://next.amboss.com/us/article/ZK0ZUS#Zccc525184d694d883090fca453c06718) microthrombosis → end-organ [ischemia](https://next.amboss.com/us/article/VP0GdT#Zbc05e544d46e794a60ac9ce9ec6883af) and damage, especially in the brain and [kidneys](https://next.amboss.com/us/article/m60VlS#Z517d2cc21845787cbf2c6ff27c21cd8e) (potentially resulting in [acute kidney injury](https://next.amboss.com/us/article/Og0Iv2#Z6deecfc16edc5ff8ed1ad2f586f55305) or [stroke](https://next.amboss.com/us/article/UR0bmf#Zdd37bc451d2e210ed3e03be192079b6c))

[ADAMTS13](https://next.amboss.com/us/article/xT0EG2#Zb67d2df2d3f707b2c2934f03c6ae307b) deficiency → excess [vWF](https://next.amboss.com/us/article/8T0Os2#Z6848bc53710e734d7e1fef22e311eaf8) → microthrombus formation → blockage of small vessels → [RBC](https://next.amboss.com/us/article/ln0vtg#Z79ddb9a0dd4dbd469d90aef3521a5f94) fragmentation ([hemolysis](https://next.amboss.com/us/article/rT0fH2#Z958cf76990e9ccf502442ead34e224b0)) and [end-organ damage](https://next.amboss.com/us/article/kO0msT#Z94d640a5c20edc6f8dc976d9dfb183cd)

NOTES

FEEDBACK

**Clinical features**

TTP patients are typically previously healthy adults. [Microangiopathic hemolytic anemia](https://next.amboss.com/us/article/rT0fH2#Zda0b304b42e7d61e473888461c687343) and [thrombocytopenia](https://next.amboss.com/us/article/wT0hG2#Zdab14a350ac311c7a2589ab7d48358ad) may be the only presenting signs. However, the classic **pentad** of clinical findings consists of:  [2][3][4]

* [**Fever**](https://next.amboss.com/us/article/j50_Pg#Za5de83449ff6a749e6c1348b93b1f3b1)
* **Neurological signs and symptoms**
  + Altered mental status, [delirium](https://next.amboss.com/us/article/6P0jfT#Zfd56fee25cf9f50f32c800e64a6e652a)
  + [Seizure](https://next.amboss.com/us/article/RR0l5f#Z34c7e6b1cab99047c956783229d49b59), focal defects, [stroke](https://next.amboss.com/us/article/UR0bmf#Zdd37bc451d2e210ed3e03be192079b6c)
  + [Headache](https://next.amboss.com/us/article/YL0nwg#Z67ba0252fff6842349617790ed19ae54), [dizziness](https://next.amboss.com/us/article/fH0kph#Z2902ea08bfe4d834c405462f8fae0720)
* [**Low platelet count**](https://next.amboss.com/us/article/wT0hG2#Zdab14a350ac311c7a2589ab7d48358ad) (i.e. [thrombocytopenia](https://next.amboss.com/us/article/wT0hG2#Zdab14a350ac311c7a2589ab7d48358ad))
  + [Petechiae](https://next.amboss.com/us/article/_405NT#Z407bfee1be646713a1d7c946d9f4d4f0), [purpura](https://next.amboss.com/us/article/_405NT#Zc8dd5ca664223e28e1b5912fb7e2b52b)
  + Mucosal bleeding
  + Prolonged bleeding after minor cuts
* [**Microangiopathic hemolytic anemia**](https://next.amboss.com/us/article/rT0fH2#Zda0b304b42e7d61e473888461c687343)
  + Fatigue, [dyspnea](https://next.amboss.com/us/article/Xq09CS#Zec7af3634c75f9e5227d266d823e5ea7), and pallor
  + [Jaundice](https://next.amboss.com/us/article/jS0_z2#Z5f49d92f52d702a9bee9b2538ad7b454)
* **Impaired renal function**
  + [Hematuria](https://next.amboss.com/us/article/Wq0PxS#Zf526abf597cc56e5ddc1862ca53aca12), [proteinuria](https://next.amboss.com/us/article/0Q0euf#Zf8ea53dacdf631df81e9f46e3ead20d1)
  + [Oliguria](https://next.amboss.com/us/article/kg0mv2#Z923732bc2a869fb5343909709f174a34), [anuria](https://next.amboss.com/us/article/kg0mv2#Z438c513d07e854c87f894ecca5d7f521) (uncommon)

The typical patient is a previously healthy adult presenting with mental status changes, [fever](https://next.amboss.com/us/article/j50_Pg#Za5de83449ff6a749e6c1348b93b1f3b1), [petechiae](https://next.amboss.com/us/article/_405NT#Z407bfee1be646713a1d7c946d9f4d4f0), fatigue, and pallor. Laboratory tests will then indicate [hemolytic anemia](https://next.amboss.com/us/article/rT0fH2#Z958cf76990e9ccf502442ead34e224b0) and possibly [acute kidney injury](https://next.amboss.com/us/article/Og0Iv2#Z6deecfc16edc5ff8ed1ad2f586f55305) ([AKI](https://next.amboss.com/us/article/Og0Iv2#Z6deecfc16edc5ff8ed1ad2f586f55305)). Impaired [kidney function](https://next.amboss.com/us/article/m60VlS#Zee807b262e400994cfd653f08790a6fe) may not be present, and only a minority of patients will present with all five clinical findings.

“**N**asty **F**ever **R**uined **M**y **T**ubes:” **N**eurological symptoms, **F**ever, **R**enal function impairment, **M**icroangiopathic [hemolytic anemia](https://next.amboss.com/us/article/rT0fH2#Z958cf76990e9ccf502442ead34e224b0), **T**hrombocytopenia are the clinical features of TTP.

NOTES

FEEDBACK

**Diagnostics**

[**Laboratory studies**](https://next.amboss.com/us/article/Ln0wFg#Ze58aa99e36800145f14fde1821e34632)**[4][5]**

**Initial tests [3][6][7]**

* [**CBC**](https://next.amboss.com/us/article/Ln0wFg#Z4ccf935251884533761ac0c529e17a64)
  + ↓ [Platelets](https://next.amboss.com/us/article/ln0vtg#Z53cb67a3181e33f55118053e63485c2e) (typically < 30,000/mm3)
  + ↓ [Hemoglobin](https://next.amboss.com/us/article/WS0PA2#Z94b6c5cf373e3de2a4f32b9f3fb10b4e)
* [**Peripheral blood smear**](https://next.amboss.com/us/article/Ln0wFg#Zd341fc04d16d4edc4db07a6f5fd34293)
  + Large number of **schistocytes** (up to 4–8% of [RBCs](https://next.amboss.com/us/article/ln0vtg#Z79ddb9a0dd4dbd469d90aef3521a5f94))
  + Low number of [platelets](https://next.amboss.com/us/article/ln0vtg#Z53cb67a3181e33f55118053e63485c2e)
* [**Hemolysis studies**](https://next.amboss.com/us/article/rT0fH2#Zdd16640c88bcf22e5c9a29d54212f27c)
  + ↑ [Reticulocytes](https://next.amboss.com/us/article/ln0vtg#Z7055a50505776dfcca4447ebfa50fa74)
  + ↓ [Haptoglobin](https://next.amboss.com/us/article/rT0fH2#Zdedc6f058b65afa72863f61f4d0a398e)
  + ↑ [LDH](https://next.amboss.com/us/article/Qp0u6S#Zce0ae361b2eacbd2f8f45b7478bc3b6e)
  + Negative direct [Coombs test](https://next.amboss.com/us/article/rT0fH2#Z52c0db752e229667780272f9ba989170)
* [**Coagulation studies**](https://next.amboss.com/us/article/Ln0wFg#Z83eb91ad37565b302448f13755c2b536)
  + Normal or mildly prolonged [prothrombin time](https://next.amboss.com/us/article/Ln0wFg#Z5fb4d308822929277ddb268f9f6a2325) ([PT](https://next.amboss.com/us/article/Ln0wFg#Z5fb4d308822929277ddb268f9f6a2325)) and [activated partial thromboplastin time](https://next.amboss.com/us/article/Ln0wFg#Z534e36b6b7436840f0da869a9e8e4e32) ([aPTT](https://next.amboss.com/us/article/Ln0wFg#Z534e36b6b7436840f0da869a9e8e4e32))
  + Normal or mildly elevated fibrin degradation products and [D-dimer](https://next.amboss.com/us/article/Ln0wFg#Z4ab5d5bfddad896473b61490eab987ca) levels
* [**Liver chemistries**](https://next.amboss.com/us/article/Ln0wFg#Zec7198aab35043cf581b97bde4bf916f): ↑ indirect [bilirubin](https://next.amboss.com/us/article/Ln0wFg#Z07a8a4f4a850245bf742b6a98121b3e0)
* [**BMP**](https://next.amboss.com/us/article/Ln0wFg#Z80bc853838cd47a7af0904d054d90cc4): ↑ [BUN](https://next.amboss.com/us/article/kg0mv2#Z9a7c79172fd9e3535fec4d9f9381f3c7) and ↑ [creatinine](https://next.amboss.com/us/article/kg0mv2#Z30f7084008940764762f792f7e8aebdd) may be seen.
* [**Troponin**](https://next.amboss.com/us/article/wS0hbf#Z6c3c09d556d368f6a9ce18eb90973327): to rule out cardiac [ischemia](https://next.amboss.com/us/article/VP0GdT#Zbc05e544d46e794a60ac9ce9ec6883af)  [4]
* [**Urinalysis**](https://next.amboss.com/us/article/kg0mv2#Zb8209254add9c4f1d8b458a49671b899): [hematuria](https://next.amboss.com/us/article/Wq0PxS#Zf526abf597cc56e5ddc1862ca53aca12), [proteinuria](https://next.amboss.com/us/article/0Q0euf#Zf8ea53dacdf631df81e9f46e3ead20d1)

While [PT](https://next.amboss.com/us/article/Ln0wFg#Z5fb4d308822929277ddb268f9f6a2325) and [aPTT](https://next.amboss.com/us/article/Ln0wFg#Z534e36b6b7436840f0da869a9e8e4e32) are normal or only mildly elevated in TTP a



Schistocytes

Photomicrograph of a peripheral blood smear

Fragmented erythrocytes, which are convex on one side (examples indicated by blue lines) and concave on the other (examples indicated by yellow lines), can be seen among the normal erythrocytes. These fragmented erythrocytes are referred to as schistocytes.

Schistocytes are a diagnostic finding in patients with microangiopathic hemolytic anemias and those with mechanical damage to erythrocytes (e.g., from artificial heart valves).

[**Confirmatory tests**](https://next.amboss.com/us/article/ps0LDh#Z2970ae9c66ccc8c5eb161278f5ed35a5)**[5][6]**

* [**ADAMTS13**](https://next.amboss.com/us/article/xT0EG2#Zb67d2df2d3f707b2c2934f03c6ae307b)**activity**

Obtain [ADAMTS13](https://next.amboss.com/us/article/xT0EG2#Zb67d2df2d3f707b2c2934f03c6ae307b) testing before the initiation of plasma exchange or administration of [blood products](https://next.amboss.com/us/article/2M0TLg#Z4b106d8520d124029ee602ce1629fdec); do not delay treatment waiting for results. [4]

**Additional testing [3]**

Consider the following studies as indicated to identify serious complications and secondary causes of TTP.

* Studies to identify secondary causes (e.g., [pregnancy](https://next.amboss.com/us/article/dO0orT#Zeba6f488931dd463917047bb9c5f18f4), [SLE](https://next.amboss.com/us/article/dT0op2#Zc038efa4f85b330e4a8d1d0224d5f1a9), [HIV](https://next.amboss.com/us/article/mf0V52#Z318c3fdbcf10c252f3453a2394e29d91), [malignancy](https://next.amboss.com/us/article/WM0Png#Z8c3bce39ca977e0f872b6d9fb3be8cfb))
* [ECG](https://next.amboss.com/us/article/pl0LBT#Zf57bff8d5455c72457da0440f636f4bc): to assess for [myocardial infarction](https://next.amboss.com/us/article/wS0hbf#Zce4df6cdb298a09d29a62ee606ec360b); may show [repolarization](https://next.amboss.com/us/article/9o0NVS#Zb450d1969f62440668e82f7886252cdf) abnormalities
* CT or [MRI](https://next.amboss.com/us/article/pN0LXg#Zefb6206a3f821bf7e5942b654dc6f6cf) brain: to assess for [stroke](https://next.amboss.com/us/article/UR0bmf#Zdd37bc451d2e210ed3e03be192079b6c)

NOTES

FEEDBACK

**Differential diagnoses**

See “[Differential diagnosis of platelet disorders](https://next.amboss.com/us/article/rL0f_g#Z487d2595b01818e7e50ab02cae458182)”

The differential diagnoses listed here are not exhaustive.

NOTES

FEEDBACK

**Treatment**

TTP requires urgent diagnosis and treatment. Do not delay treatment while awaiting test results to confirm [ADAMTS13](https://next.amboss.com/us/article/xT0EG2#Zb67d2df2d3f707b2c2934f03c6ae307b) deficiency.

**Supportive care [4]**

* **Fluids and**[**electrolytes**](https://next.amboss.com/us/article/Ln0wFg#Z562f1491861b33bdb5af572388e99541)
  + Correct [electrolyte](https://next.amboss.com/us/article/Ln0wFg#Z562f1491861b33bdb5af572388e99541) disturbances.
  + Provide [intravenous fluid therapy](https://next.amboss.com/us/article/fM0kLg#Z0ca66c2df4b99953c5a0cb25aed87835) as indicated.
  + Identify and correct [acid-base disorders](https://next.amboss.com/us/article/zL0rZS#Z6e4d6d46a60235899a065dd0e173a5f4).
* [**Transfusions**](https://next.amboss.com/us/article/2M0TLg#Z0d767a500a4efcb1314a93ab2616de44)
  + Avoid prophylactic [platelet transfusions](https://next.amboss.com/us/article/2M0TLg#Zc708b1fe0f461e690573be05eb7425de).
  + Consider therapeutic [platelet transfusions](https://next.amboss.com/us/article/2M0TLg#Zc708b1fe0f461e690573be05eb7425de) for patients who are bleeding or require an invasive procedure.
  + [RBC](https://next.amboss.com/us/article/ln0vtg#Z79ddb9a0dd4dbd469d90aef3521a5f94) [transfusions](https://next.amboss.com/us/article/2M0TLg#Z0d767a500a4efcb1314a93ab2616de44): Follow a restrictive [transfusion](https://next.amboss.com/us/article/2M0TLg#Z0d767a500a4efcb1314a93ab2616de44) strategy (consider [pRBC transfusion](https://next.amboss.com/us/article/2M0TLg#Zb260ea4095caabfc3c4c56a7dd52caeb) if [Hb](https://next.amboss.com/us/article/WS0PA2#Z94b6c5cf373e3de2a4f32b9f3fb10b4e) is ≤ 7 g/dL). [9]

**Empiric therapy [4]**

* Prompt initiation of **plasma exchange therapy (PEX)**
* High-dose [**glucocorticoids**](https://next.amboss.com/us/article/km0mfg#Z521ecba6f9748e7fed6b743a73ccfabd)
  + [Prednisone](https://next.amboss.com/us/article/km0mfg#Z7acc6b8a4fb3eecc9bdffe7ff1f88c25)
  + OR [methylprednisolone](https://next.amboss.com/us/article/km0mfg#Z8285bfff684cdbf2f8b9eba0d51576fd)
* Patients with a high [pretest probability](https://next.amboss.com/us/article/ps0LDh#Z13c998f5ce11971464c36b69de467dc4) of TTP (based on clinical judgment)
  + Consider early caplacizumab.
  + Consider [rituximab](https://next.amboss.com/us/article/qM0Cpg#Ze00b1d8151bfbc4dd3b134e0567b0d43).

NOTES

FEEDBACK

**Complications**

TTP can result in **microthrombus formation** and complications in many organs of the body. [12]

* [CNS](https://next.amboss.com/us/article/lp0vpS#Z0111aade770ed6f7d136b455de1d6c1f): [seizures](https://next.amboss.com/us/article/RR0l5f#Z34c7e6b1cab99047c956783229d49b59), [coma](https://next.amboss.com/us/article/br0Hfh#Z300240fc327de796336a58a91de88a43), **stroke**, paresis
* [GI tract](https://next.amboss.com/us/article/M60MlS#Zf0833058b7152af8b5653b79f76fb153): hemorrhagic [colitis](https://next.amboss.com/us/article/R60lkS#Z579996fe3b9825568e212d9393d5d9a2); bowel [necrosis](https://next.amboss.com/us/article/VP0GdT#Z28b2cd3d009fe208ee54280c99b41b38), perforation, stricture; peritonitis; [intussusception](https://next.amboss.com/us/article/Ah0Rgf#Z2d5b98050c5dd3843bf05fbbf8a873bc)
* [Heart](https://next.amboss.com/us/article/Up0bKS#Z4e3e2c1885949b623580f92078d56c7d): [ischemia](https://next.amboss.com/us/article/VP0GdT#Zbc05e544d46e794a60ac9ce9ec6883af) and [fluid overload](https://next.amboss.com/us/article/fM0kLg#Z8691613a1023ed6b2f562d848b9043be)
* [Pancreas](https://next.amboss.com/us/article/260T4S#Z0842648c05a9f12b182c77d4baeb7a3a): transient or permanent [diabetes mellitus](https://next.amboss.com/us/article/3g0SE2#Z1235e572dd827cff7d31e954b3f94489)
* [Liver](https://next.amboss.com/us/article/j60_kS#Zd0ed3eb208321943f24b364e0a464294): [hepatomegaly](https://next.amboss.com/us/article/XL09wg#Z709336d8b15286caf8a83fc77a8f0f99), [transaminase](https://next.amboss.com/us/article/Ln0wFg#Zde6636a7a9eaab224426560b3e3b2b4c) elevations
* [Kidney](https://next.amboss.com/us/article/m60VlS#Z517d2cc21845787cbf2c6ff27c21cd8e): [hypertension](https://next.amboss.com/us/article/Xh09cf#Zce0d4554dd0bc7f9fba742d2827ffc63), [chronic kidney disease](https://next.amboss.com/us/article/lg0vv2#Zeb975888cde4515672ab89a7a3068ab2) ([CKD](https://next.amboss.com/us/article/lg0vv2#Zeb975888cde4515672ab89a7a3068ab2)), end-stage renal disease ([ESRD](https://next.amboss.com/us/article/lg0vv2#Z5f2d2b148d5754dd46529c929a8368ee))

We list the most important complications. The selection is not exhaustive.

NOTES

FEEDBACK

**Prognosis**

The prognosis depends primarily on prompt initiation of treatment. Timely treatment can prevent acute complications ([AKI](https://next.amboss.com/us/article/Og0Iv2#Z6deecfc16edc5ff8ed1ad2f586f55305), [coma](https://next.amboss.com/us/article/br0Hfh#Z300240fc327de796336a58a91de88a43), and [death](https://next.amboss.com/us/article/vP0AgT#Z50d4cd4f1799c2c9f72dcc5af8b9aace)), as well as progression to [chronic renal failure](https://next.amboss.com/us/article/lg0vv2#Zeb975888cde4515672ab89a7a3068ab2).

* The [mortality rate](https://next.amboss.com/us/article/Js0sDh#Zbec41b67d43f63664a35843488324e30) of TTP is favorable with treatment: 10–20%