

## 56. Lupus anticoagulant and INR

*Last Updated: 2/15/2004*

**Q1: "Could you please explain more about the effect of lupus anticoagulants on the INR tests? My hematologist has not heard of the difficulties of the two interacting with each other. Are there any references you could provide so I can give them to my doc? I have not been able to maintain a consistent INR level; it is either at 1.8 or 3.8, very rarely does it come in between 2-3."**

A1: Some lupus anticoagulants interfere with the INR determination. They may lead to an elevated INR even if a patient is not on warfarin (=coumadin®) [reference 1].

**Q2: "If you have lupus anticoagulant factor the PT/PTT testing is rendered unreliable and factor VII blood draws is the test of preference. I was so frustrated with unstable INRs... and I knew I was doing everything I was supposed to do...I found an article about lupus anticoagulants and took it to my doctor. He was almost as relieved as I was to learn that I wasn't "unstable" but that the incorrect test was being used, given the appearance of instability"**

A2: While it is correct that lupus anticoagulants can render the PT and aPTT unreliable, factor VII blood draws are not the test of preference. Chromogenic factor X test, factor II or factor X activity assay, or Prothrombin-Proconvertin-time are the tests of preference, or use of a PT-reagent that is insensitive to the lupus anticoagulant [reference 1].

**Q3: "My son and I both suffer from joint pains and we both have elevated ANA [Anti Nuclear Antibodies] which can possibly be a sign for having lupus or some other autoimmune disease. I know I've seen the word lupus a lot and was just wondering if this happens as a result of being positive for factor V Leiden"**

A3: Lupus anticoagulants are not related to factor V Leiden in any way. The only thing both have in common is that both increase the risk for blood clots.

Lupus anticoagulants belong to the group of antiphospholipid antibodies (also see [Q/A 21](#)) and are discovered in the lab by clotting tests. They can lead to a prolongation of the PTT even if the patient is not on heparin, and to a prolongation of the PT and an elevation of the INR even if the patient is not on warfarin (= coumadin). Thus, PT and PTT may be unreliable in monitoring heparin or warfarin (= coumadin) therapy. Alternative tests, uninfluenced by the lupus anticoagulant, need to be used for monitoring. This is the anti-Xa test for heparin monitoring and are the following tests for warfarin (= coumadin) monitoring:

1. Chromogenic factor X
2. Factor II activity
3. Factor X activity
4. Prothrombin-proconvertin time

Laboratories use so-called PT reagents when determining an INR. Some PT reagents are very insensitive towards the lupus anticoagulant and are therefore not or only minimally influenced by the lupus anticoagulant; these reagents may be o.k. to use to monitor the INR in patients with lupus anticoagulants. However, other reagents are very much influenced by lupus anticoagulants (including the PT reagent most commonly used in the U.S., Innovin®), and therefore lead to misleadingly high INR values. Most clinicians do not know what PT-reagent their lab uses and the interpretation of INRs is therefore hampered. Patients with lupus anticoagulants who require warfarin (= coumadin) therapy should probably best be seen at least once, better even on a regular basis, by a physician knowledgeable about antiphospholipid antibodies and the unreliability of the INR (also see [Q/A 54](#)). These monitoring issues are discussed in detail in reference 1.

### Reference:

1. Ann Intern Med 1997;127:177-185: "Monitoring Warfarin Therapy in Patients with Lupus Anticoagulants".