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Heparin-Induced Thrombocytopenia with Low Molecular Weight Heparin after Total Knee Replacement

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Case Presentation: A 77-year-old woman underwent right total knee replacement (TKR) under epidural anesthesia. For deep vein thrombosis (DVT) prophylaxis, she received warfarin for 2 days and then enoxaparin in addition to intermittent pneumatic compression. On postoperative day 2 she was transferred to the rehabilitation service.

The patient continued to have knee pain but was otherwise doing well and was scheduled for discharge. On postop day 12 she complained of increased pain in her right knee and leg; a venous duplex study revealed an acute proximal DVT, and she was transferred to the medical service.

She was initially treated with enoxaparin and warfarin, which were discontinued after 1 dose when the patient's platelet count was noted to be 98,000. Hematology was consulted for possible heparin-induced thrombocytopenia (HIT), heparin antibody study was requested, and argatroban was started. The dose was adjusted, and when the patient's platelet count was 139,000, warfarin was restarted. When the international normalized ratio (INR) was therapeutic, argatroban was discontinued. The patient was discharged home on postop day 36 **(Table, next page)**.

Discussion: HIT is a complication more commonly associated with unfractionated heparin (UFH) than low molecular weight heparin (LMWH). After stopping heparin therapy, thrombosis (arterial or venous) may occur in up to 50% of cases, and alternate anticoagulant therapy is indicated. In retrospect, this patient had relative thrombocytopenia as early as postop day 7 (< 50% of baseline) but definitely by day 8 (absolute thrombocytopenia < 150,000); however, it was not recognized, possibly due to the feeling that HIT is rare, especially with LMWH. Earlier recognition and discontinuation of LMWH might have prevented the DVT, although the risk of DVT after TKR is significant (up to 20% even with appropriate prophylaxis).

Key Points: (1) Recognize that HIT can occur with LMWH as well as with UFH. (2) Stop the offending agent (UFH/LMWH) immediately once HIT is suspected.

TABLE
HIT and LMWH after TKR

Hospital day	Comments	Platelet count (thousand)	Treatment
−1	Preop (baseline)	631	Warfarin 5 mg
0	Day of surgery	604	Warfarin 5 mg
1	Postop day 1	596	Enoxaparin 30 mg q12h
2	Transfer to rehab	570	Enoxaparin 30 mg q12h
4	—	749	Enoxaparin 30 mg q12h
6	—	338	Enoxaparin 30 mg q12h
7	Relative thrombocytopenia	168	Enoxaparin 30 mg q12h
8	Absolute thrombocytopenia	118	Enoxaparin 30 mg q12h
9	Friday	98	Enoxaparin 30 mg q12h
12	DVT Dx – transfer to med service; enoxaparin treatment dose started		Enoxaparin 100 mg q12h + warfarin 5 mg
13	Enoxaparin/warfarin stopped; HIT Dx	44	Argatroban
14	—	50	Argatroban
15	Heparin Ab reported as +	95	Argatroban
16	Warfarin restarted	139	Argatroban + warfarin
17	—	184	Argatroban + warfarin
18	—	221	Argatroban + warfarin
25	—	534	Argatroban + warfarin
28	Argatroban stopped	591	Warfarin
36	Discharged home on warfarin	855	Warfarin 14 mg daily