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## **Referral of patients with thrombocytopenia from primary care clinicians to hematologists**

Deirdra R. Terrell, Laura A. Beebe, James N. George, Sara K. Vesely and James W. Mold

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## References

- Li C, Schwarz UI, Ritchie MD, Roden DM, Stein CM, Kurnik D. Relative contribution of CYP2C9 and VKORC1 genotypes and early INR response to the prediction of warfarin sensitivity during initiation of therapy. *Blood*. 2008;113:3925-3930.
- Michaud V, Vanier MC, Brouillette D et al. Combination of phenotype assessments and CYP2C9-VKORC1 polymorphisms in the determination of warfarin dose requirements in heavily medicated patients. *Clin Pharmacol Ther*. 2008;83:740-748.
- Perini JA, Struchiner CJ, Silva-Assunção E, et al. Pharmacogenetics of warfarin: development of a dosing algorithm for Brazilian patients. *Clin Pharmacol Ther*. 2008;84:722-728.
- Sconce EA, Khan TI, Wynne HA, et al. The impact of CYP2C9 and VKORC1 genetic polymorphism and patient characteristics upon warfarin dose requirements: proposal for a new dosing regimen. *Blood*. 2005;106:2329-2333.
- Wadelius M, Chen LY, Downes K, et al. Common VKORC1 and GGCX polymorphisms associated with warfarin dose. *Pharmacogenomics J*. 2005;5:262-270.
- Veenstra DL, You JH, Rieder MJ, et al. Association of Vitamin K epoxide reductase complex 1 (VKORC1) variants with warfarin dose in a Hong Kong Chinese patient population. *Pharmacogenet Genomics*. 2005;15:687-691.
- Aquilante CL, Langae TY, Lopez LM, et al. Influence of coagulation factor, vitamin K epoxide reductase complex subunit 1, and cytochrome P450 2C9 gene polymorphisms on warfarin dose requirements. *Clin Pharmacol Ther*. 2006;79:291-302.
- Takahashi H, Wilkinson GR, Nutescu EA, et al. Different contributions of polymorphisms in VKORC1 and CYP2C9 to intra- and inter-population differences in maintenance dose of warfarin in Japanese, Caucasians and African-Americans. *Pharmacogenet Genomics*. 2006;16:101-110.
- Gage BF, Eby C, Johnson JA, et al. Use of pharmacogenetic and clinical factors to predict the therapeutic dose of warfarin. *Clin Pharmacol Ther*. 2008;84:326-331.
- International Warfarin Pharmacogenetics Consortium, Klein TE, Altman RB, et al. Estimation of the warfarin dose with clinical and pharmacogenetic data. *N Engl J Med*. 2009;360:753-764.

## To the editor:

### Referral of patients with thrombocytopenia from primary care clinicians to hematologists

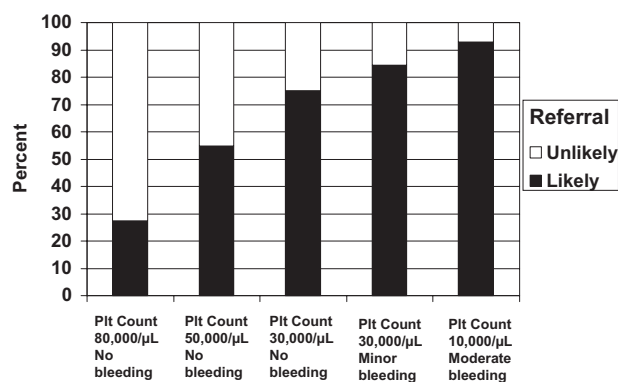
Immune thrombocytopenic purpura (ITP) is an uncommon disorder, with an annual incidence of 2.7 adults/10<sup>5</sup> per year.<sup>1</sup> To estimate the prevalence of ITP with a focus on patients who may require treatment, we planned to survey all hematologists in the state of Oklahoma. To determine the validity of contacting only hematologists, we assessed primary care clinicians' self-reported practices regarding referral of patients with isolated thrombocytopenia to a hematologist. Approval was obtained from the University of Oklahoma Health Sciences Center Institutional Review Board for these studies. Informed consent was obtained in accordance with the Declaration of Helsinki.

Surveys were sent to 127 primary care clinicians who participate actively in the Oklahoma Practice-Based Research Network (OKPRN), representing approximately 4% of the total primary care clinicians in Oklahoma. The survey presented 5 case vignettes, each describing a healthy 35-year-old woman who had taken no medications, had no symptoms other than the described bleeding, and who had normal blood counts except for thrombocytopenia, criteria suggesting the diagnosis of ITP.<sup>2</sup> The scenarios ranged from mild, asymptomatic thrombocytopenia to severe thrombocytopenia with significant bleeding symptoms. Eighty-four (66%) practitioners completed the survey. Of these, 67 (80%) were MDs, 8 (9%) were DOs, 5 (6%) were nurse practitioners, and 4 (5%) were physician's assistants. Among the respondents, 43 (51%) had been in practice for 6 to 20 years, 10 (12%) for less than 6 years, and 31 (37%) for more than 20 years.

The referral pattern demonstrated by this survey (Figure 1) is similar to recommendations of the ASH ITP Practice Guideline, which recommends that patients presenting with platelet counts greater than 30 000/ $\mu$ L may not require treatment.<sup>2</sup> Potential barriers to referrals were revealed. Sixteen (19%) stated that there was not a hematologist within 50 miles of their practice, and 33 (39%) stated that there was not a hematologist they routinely called for advice and to whom they referred patients. One clinician added a comment that illustrated an additional potential barrier: "I have had difficulty identifying a 'hematologist.'" Most 'heme/onc' specialists view themselves solely as 'oncologists' and are unhelpful for anything short of 'cancer.'" This potential barrier to referral of patients with benign hematologic disorders deserves further study.

Referral patterns among physicians have been extensively studied because they affect both the quality and cost of health care.<sup>3</sup> However, there are no previous data on referral of patients with isolated thrombocytopenia from primary care clinicians to hematologists, perhaps reflecting the low incidence of ITP.<sup>1</sup> A 17-month study of the referral decisions of 141 family physicians documented no patients with isolated thrombocytopenia among 184 conditions seen during 34 519 office visits.<sup>4</sup>

Previous studies have validated the use of patient vignettes to measure the quality of clinical practice.<sup>5</sup> Although some aspects of the practice of the clinicians who participated in the OKPRN survey may not be representative of all US primary care clinicians, the overall referral practices of family physicians in practice-based research networks are similar to a national sample of primary care physicians.<sup>4</sup>



**Figure 1. Clinicians' self-reported likelihood of referral to a hematologist of patients presenting with various severities of thrombocytopenia and bleeding symptoms.** The bars represent responses of 84 primary care clinicians who responded to questions describing a 35-year-old woman with thrombocytopenia and either no bleeding or bruising symptoms, mild bleeding symptoms (minor bruising and prolonged menstrual periods; mild petechiae on her ankles and legs), or moderate bleeding (blood blisters in her mouth and gum bleeding). For each patient scenario, the clinicians were asked, "How likely are you to send her to a hematologist?" and given 4 possible answers from which to choose: very likely, likely, unlikely, and very unlikely. For this figure, very likely and likely were combined; unlikely and very unlikely were also combined.

This survey documents that patients who present to primary care clinicians with a new occurrence of moderate to severe thrombocytopenia are appropriately referred to a hematologist, but it also identified potential barriers to the referral of patients with benign disorders to a hematologist.

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*Conflict-of-interest disclosure: The authors declare no competing financial interests.*

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## References

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1. Frederiksen H, Schmidt K. The incidence of ITP in adults increases with age. *Blood*. 1999;94:909-913.
2. George JN, Woolf SH, Raskob GE, et al. Idiopathic thrombocytopenic purpura: A practice guideline developed by explicit methods for the American Society of Hematology. *Blood*. 1996;88:3-40.
3. Sirovich BE, Gottlieb DJ, Welch G, Fisher ES. Variation in the tendency of primary care physicians to intervene. *Arch Intern Med*. 2005;165:2252-2256.
4. Forrest CB, Nutting PA, Starfield B, von Schrader S. Family physicians' referral decisions. Results from the ASPN Referral Study. *J Fam Pract*. 2002;51:215-222.
5. Peabody JW, Luck J, Glassman P, et al. Measuring the quality of physician practice by using clinical vignettes: a prospective validation study. *Ann Intern Med*. 2004;141:771-780.