4. Boissel N, Auclerc MF, Lhéritier V, et al. Should adolescents with acute lymphoblastic leukemia be treated as old children or young adults? Comparison of the French FRALLE-93 and LALA-94 trials. *J Clin Oncol.* 2003;21(5):774-780.

5. Huguet F, Leguay T, Raffoux E, et al. Pediatric-inspired therapy in adults with Philadelphia chromosome-negative acute lymphoblastic leukemia: the GRAALL-2003 study [published correction appears in J Clin Oncol. 2009; 27(15):2574]. *J Clin Oncol.* 2009;27(6):911-918.

6. Ramanujachar R, Richards S, Hann I, et al. Adolescents with acute lymphoblastic leukaemia: outcome on UK national paediatric (ALL97) and adult (UKALLXII/E2993) trials. *Pediatr Blood Cancer.* 2007;48(3):254-261.

7. Ramanujachar R, Richards S, Hann I, Webb D. Adolescents with acute lymphoblastic leukaemia: emerging from the shadow of paediatric and adult treatment protocols. *Pediatr Blood Cancer.* 2006;47(6):748-756.

8. de Bont JM, van der Holt B, Dekker AW, van der Does-van den Berg A, Sonneveld P, Pieters R. Adolescents with acute lymphatic leukaemia achieve significantly better results when treated following Dutch paediatric oncology protocols than with adult protocols [in Dutch]. *Ned Tijdschr Geneeskd.* 2005; 149(8):400-406.

9. Ribera JM, Oriol A, Sanz MA, et al. Comparison of the results of the treatment of adolescents and young adults with standard-risk acute lymphoblastic leukemia with the Programa Español de Tratamiento en Hematología pediatric-based protocol ALL-96. *J Clin Oncol.* 2008;26(11):1843-1849.

10. Testi A. Difference in outcome of adolescents (14-17 years) with acute lymphoblastic leukemia (ALL) enrolled in the Italian pediatric (AIEOP) and adult (GIMEMA) multicenter protocols [abstract]. J Clin Oncol. 2006;24(18S):9024.

11. Usvasalo A, Räty R, Knuutila S, et al. Acute lymphoblastic leukemia in adolescents and young adults in Finland. *Haematologica.* 2008;93(8):1161-1168.

Response

Chemotherapy versus allogeneic transplantation in adult patients with acute lymphoblastic leukemia in first remission: not a time for dogma

Isakoff and colleagues highlight in their letter that young adults with acute lymphoblastic leukemia (ALL) treated with a pediatric-inspired regimen do not need a bone marrow transplant in first remission. Their assumption is based on comparisons of published outcomes of young patients with ALL treated with adult and pediatric-inspired regimens mainly in the age group of 15 to 20 years. Although the outcomes of pediatric-inspired regimens in young adults 15 to 20 years old with ALL are encouraging, several factors should be taken into consideration before any valid conclusions can be drawn.

In our report, a young adult is defined as <35 years old.[1] It is highly speculative that the findings of patients treated in the age group of 15 to 20 years can be generalized to those >20 years old.

The best chemotherapy regimen for young adults with ALL is unknown. A pediatric-inspired regimen may be better than a standard adult regimen, but comparison of these regimens has never been prospectively studied. One has to question the real causes of differences in outcomes with these regimens. There are minimal data on the comparison of drug dosages delivered in pediatric- vs adult-type regimens.[2] Is it truly the impact of intensity of a pediatric-inspired regimen or a pediatric culture of maintaining a prescribed dosage and schedule strictly with minimal interruptions?[3] In addition to these physician practice patterns, the issue is further confounded by referral patterns and patient compliance.

In summary, we present an individual patient data meta-analysis according to a well-defined study protocol (available at: http://www.ctsu.ox.ac.uk/research/meta-trials/leukaemia-metaanalyses/protocol-2009). Of course, we agree that if the outcomes of chemotherapy improve (in the absence of a concomitant improvement in the transplant), this could abrogate the need for a transplant, but we wish to emphasize that this needs to be demonstrated in prospective randomized studies, which, to our knowledge, have not yet been done. The key to the future would seem to be continued study of modern chemotherapy protocols vs allogeneic transplantation as part of well-designed prospective studies.

Vikas Gupta
Princess Margaret Cancer Centre, University of Toronto, Toronto, ON, Canada

Sue Richards
Clinical Trial Service Unit, Oxford University, Oxford, United Kingdom

Jacob M. Rowe
Eastern Cooperative Oncology Group, Boston, MA

Acknowledgments: This work was supported by Cancer Research UK and the Medical Research Council. Funders were not involved in study design, analysis, or reporting.

Contribution: V.G., S.R., and J.M.R. wrote the paper on behalf of the Acute Leukaemia Stem Cell Transplant Trialists' Collaborative Group.

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

Correspondence: Sue Richards, Clinical Trial Service Unit, Richard Doll Building, Roosevelt Dr, Oxford OX3 7LF, UK; e-mail: alsct.overview@ctsu.ox.ac.uk

References

1. Gupta V, Richards S, Rowe J; Acute Leukemia Stem Cell Transplantation Trialists' Collaborative Group. Allogeneic, but not autologous, hematopoietic cell transplantation improves survival only among younger adults with acute lymphoblastic leukemia in first remission: an individual patient data meta-analysis. *Blood.* 2013;121(2):339-350.

2. Stock W, La M, Sanford B, et al; Children's Cancer Group; Cancer and Leukemia Group B studies. What determines the outcomes for adolescents and young adults with acute lymphoblastic leukemia treated on cooperative group protocols? A comparison of Children's Cancer Group and Cancer and Leukemia Group B studies. *Blood.* 2008;112(5):1646-1654.

3. Schiffer CA. Differences in outcome in adolescents with acute lymphoblastic leukemia: a consequence of better regimens? Better doctors? Both? *J Clin Oncol.* 2003;21(5):760-761.

To the editor:

Coordinate expression of transcripts and proteins in platelets

Published reports have demonstrated coordinate expression between messenger RNA and proteins in platelets.[1-3] It was therefore surprising that, comparing our RNA-seq data set[4] to their quantitative proteomics data set, Burkhart et al[5] concluded that "in platelets, the occurrence of proteins is not interrelated to the presence of transcripts." The accompanying highlight article reiterated that "the protein profile