Individualized Risks of First Adverse Events in Patients With Fanconi Anemia

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Abstract

Fanconi Anemia (FA) is an autosomal recessive condition associated with bone marrow failure (BMF), leading to death or hematopoietic stem cell transplant, acute myeloid leukemia (AML), and solid tumors (STs). It is unclear which patients are most likely to develop each outcome. From a cohort of 144 North American patients with FA, we calculated individualized risks of each outcome given the presence or absence of readily diagnosed congenital abnormalities that occur frequently in FA (Rosenberg, Huang, and Alter, *Blood*, 2004). Abnormal radii and a five-item congenital abnormality score were significant risk factors for BMF. The cumulative incidence of BMF by age 10 years varied from 18% in the lowest BMF risk group to 83% in the highest. Because of competing risks, patients in the lowest BMF risk group were most likely to live long enough to develop AML or ST, and conversely, patients in the highest BMF risk group were least likely to live long enough to develop AML or ST. By age 40, the cumulative incidence of ST ranged from 0.6% to 29% in the highest and lowest BMF risk groups, respectively. Abnormal radii are the strongest predictors of early BMF in FA; a congenital abnormality score separates the large majority of FA patients with normal radii into distinct prognostic groups.