

Biosimilars: same ol' – but with a suffix, and cheaper

David Henry, MD, FACP

Biosimilars have arrived, and chances are that you're already prescribing them. Last September, the US Food and Drug Administration (FDA) approved the first cancer-specific biosimilar, bevacizumab-awwb, for multiple cancer types (p. e60);¹ and in November, it approved trastuzumab-dkst for HER2-positive breast and gastrointestinal cancers (p. e63).¹ Briefly, biosimilars are biologic products that show comparable quality, efficacy, and safety to an existing, approved biologic known as the reference product.

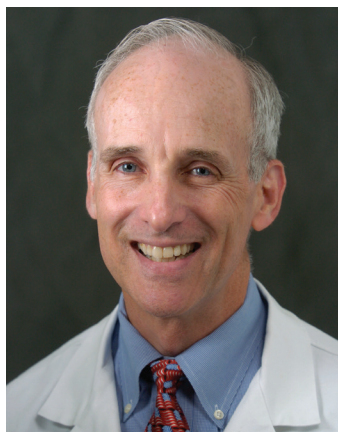
Small-molecule drugs such as aspirin are easy to replicate identically, whereas biosimilars are large, complex proteins that are manufactured in nature's factory, a microorganism or biologic cell.² The manufacturing process must be nearly identical to that for the reference product, so that only insignificant/nonclinically significant impurities occur in the final product. The protein-amino acid sequence is key and must therefore be identical. The 2010 Biologics Price Competition and Innovation Act established an abbreviated pathway for the FDA to consider and approve biosimilars, and 5 years later, the bone marrow stimulant filgrastim-sndz became the first biosimilar approved for use in the United States.³

The development of biosimilars is not inexpensive. The law and the FDA approval system require preclinical and phase 1 testing, and a robust phase 3 trial against the reference product to demonstrate that safety and efficacy are statistically not different and that any chemical differences between the biosimilar and reference product are clinically

and safety or immunogenically insignificant. When those criteria have been met, and the biosimilar approved, the clinical and cost benefits to patients could be significant. In general, the cost of a biosimilar is about 20% to 30% lower than that of the reference product.

Biosimilarity does not yet allow interchangeability. Small-molecule generics under FDA regulations are interchangeable in the drug store and the hospital without the prescriber or patient being aware. That is not yet the case with biosimilars, but their lower prices could have a notable impact on overall cost of care. In 2013, 7 of the top 8 best-selling drugs in the global market were biologics.⁴ Three of the top 8 – rituximab, trastuzumab, and bevacizumab – were used to treat cancer, and 1 (pegfilgrastim) was for therapy-related neutropenia. Their total cost was US\$27 billion. Biosimilars of those therapies could significantly lower that amount.

Nabhan and colleagues interviewed 510 US-based community oncologists about their understanding of biosimilars. They found that only 29% of respondents said they prescribed filgrastim-sndz for supportive care by personal choice, but upward of 73% said they would prescribe biosimilars for the active anticancer therapies, trastuzumab and bevacizumab. There's no question that biosimilars are here to stay. The requirements to make them have been well worked out. Their safety and efficacy therefore can be assured, and their lower prices promise cost savings for patients and society as a whole.



References

1. Bosserman L. Cancer care in 2017: the promise of more cures with the challenges of an unstable health care system. <https://www.mdedge.com/jcso/article/154559/cancer-care-2017-promise-more-cures-challenges-unstable-health-care-system>. December 15, 2017. Accessed April 23, 2018.
2. Biosimilar and interchangeable products. FDA website. <https://www.fda.gov/Drugs/DevelopmentApprovalProcess/HowDrugsareDevelopedandApproved/ApprovalApplications/TherapeuticBiologicApplications/Biosimilars/ucm580419.htm#biological>. Last updated October 23, 2017. Accessed April 25, 2018.
3. de Lartigue J. Filgrastim-sndz debuts as the first biosimilar approved in United States. <https://www.mdedge.com/jcso/article/105177/patient-survivor-care/filgrastim-sndz-debuts-first-biosimilar-approved-united>. Published December 2015. Accessed April 23, 2018.
4. The Dish. Biologics still on top in best selling drugs of 2013. <http://cellculturedish.com/2014/03/top-ten-biologics-2013-us-pharmaceutical-sales-2/>. March 13, 2014. Accessed April 26, 2018.
5. Nabhan C, Jeune-Smith Y, Valley A, Feinberg BA. Community Oncologists' Perception and Acceptance of Biosimilars in Oncology. <https://www.journalofclinicalpathways.com/article/community-oncologists-perception-and-acceptance-biosimilars-oncology>. Published March 2018. Accessed April 24, 2018.

Correspondence: David Henry, MD; David.Henry@uphs.upenn.edu. Disclosures: Dr Henry reports no disclosures or conflicts of interest. JCSO 2018;16(2):e59. ©2018 Frontline Medical Communications. doi: <https://doi.org/10.12788/jcso.0400>