Should biologics for psoriasis be interrupted in the era of COVID-19?

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COVER LETTER

Should biologics for psoriasis be interrupted in the era of COVID-19?

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Dr. Mark Lebwohl is an employee of Mount Sinai and receives research funds from: Abbvie, Amgen, Eli Lilly, Janssen Research & Development, LLC, Novartis, Ortho Dermatologics, and UCB, Inc. He has been the principal investigator for numerous clinical trials but has no personal financial gain.

Ryan Rivera-Oyola has no relevant conflicts of interest.

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To the editor:

With daily media warnings of a looming pandemic, physicians are understandably concerned about immunosuppressive or immunomodulating effects that might render patients on biologic therapies more susceptible to COVID-19 infection. At this early stage, we do not have specific data about susceptibility to the virus, but we have data on infectious complications for biologic therapies from their pivotal trials for psoriasis.

In table 1 we compare overall infection rates as well as upper respiratory infections and nasopharyngitis for each drug to its placebo control based on published data from pivotal trials.

For TNF blockers, during the placebo-controlled periods overall infections and upper respiratory infections are increased by up to 7% compared to placebo, except for etanercept, which showed no increase. TNF blockers carry a black box warning concerning infection. Ustekinumab showed a small increase in overall infections but not in respiratory tract infections. Ustekinumab blocks IL-12 and IL-23; and IL-12 plays an important role in fighting viral infections.[1] IL-23 blockers showed increases in overall infections up to 9%, but upper respiratory infections were increased slightly in some trials, but not in others. IL-17 blockers showed increases in overall infections by up to 11%, but much of that increase could be accounted for by increases in monilial infections. Upper respiratory infections were increased by small amounts for secukinumab, but not for ixekizumab or brodalumab.

It is difficult to extrapolate from these data to susceptibility to coronavirus infection, and this analysis is further flawed by small numbers of infections and short placebo-controlled periods. Moreover, minor respiratory infections may be under-reported, and some infections may be reported doubly as upper respiratory infections and as nasopharyngitis.

Nonetheless, this data may be used to decide whether to continue biologic therapy during pandemics. We do not know if biologic therapies render patients more susceptible to coronavirus, but we know that in a pre-coronavirus era, respiratory infection rates were comparable to placebo. Conversely, discontinuation of some biologics can result in loss of response when treatments are reintroduced or even result in the formation of antibodies to the discontinued biologic.[2-4] All of these factors must be considered when advising patients about continuing or discontinuing biologic therapies.

Table 1: Rate of infections in available biologic agents for psoriasis

	Biologics	Infections, overall [biologics/placebo; n (%)]	URTI [biologics/placebo; n (%)]	Nasopharyngitis [biologics/placebo; n (%)]
TNF	Etanercept	NR	51 (13)/25 (13)✞	NR
	Adalimumab	235(29)/89 (22)	59 (7)/14 (4)	73 (8)/37 (8)*
	Infliximab	125 (42)/ 30 (40)	135 (15)/41 (14)*✞	50 (5)/13 (5) *✞
	Certolizumab	129 (36)/31 (31)*✞	24 (7)/5 (5)*✞	50 (14)/12 (12)*✞
IL-12/23	Ustekinumab	326 (25)/150 (23)*✞	64 (5)/ 30 (5)*✞	105 (8)/29 (8)*✞
IL-23	Guselkumab	191 (23)/90 (21)*	41 (5)/ 19 (5)*	65 (8)/33 (8)*

	Tildrakizumab	NR	25 (2)/9 (3)*✞	120 (10)/20 (6)*✞
	Risankizumab	131 (22)/26 (13)*	28 (5)/4 (2)*	NR
IL-17	Secukinumab	326 (29)/103 (18)*✞	36 (3)/3 (1)*✞	125 (11)/45 (8)*✞
	Ixekizumab	381 (26)/74 (21)*✞	51 (3)/12 (3)*✞	119 (8)/28 (8)*✞
	Brodalumab	NR	112 (5)/40 (6)*✞	157 (6)/36 (6)*✞

TNF: Tumor necrosis factor; IL-12/23: Interleukin 12/23 IL-23: Interleukin 23; IL-17: interleukin 17; URTI: Upper respiratory tract infection; NR: Not reported
*Data collected from two pivotal phase III trials and reported as mean
✞Combined doses reported as mean

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