RESEARCH SUMMARY

Tofacitinib in Patients Hospitalized with Covid-19 Pneumonia

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CLINICAL PROBLEM

Severe Covid-19 is associated with an exaggerated immune response that has been termed "cytokine storm." Tofacitinib, an oral Janus kinase inhibitor, indirectly suppresses cytokine production, but whether it improves outcomes in Covid-19 pneumonia is unclear.

CLINICAL TRIAL

Design: A multicenter, randomized, double-blind, placebo-controlled trial of tofacitinib was conducted in hospitalized adults with Covid-19 pneumonia.

Intervention: 289 patients in Brazil with Covid-19 pneumonia who had been hospitalized for less than 72 hours were assigned to receive tofacitinib (10 mg) or placebo twice daily for up to 14 days or until hospital discharge. Patients receiving noninvasive or invasive mechanical ventilation on the day of randomization were excluded. The primary efficacy outcome was death or respiratory failure during 28 days of follow-up.

RESULTS

Efficacy: By day 28, the cumulative incidence of death or respiratory failure was significantly lower in the tofacitinib group than in the placebo group. Of note, nearly 90% of patients in each group received glucocorticoids during their hospital stay.

Safety: Serious adverse events occurred in 14.1% of the tofacitinib group and 12.0% of the placebo group. There was one case each of deep-vein thrombosis, acute myocardial infarction, ventricular tachycardia, and myocarditis in the tofacitinib group and hemorrhagic stroke and cardiogenic shock in the placebo group.

LIMITATIONS AND REMAINING QUESTIONS

- Remdesivir was not available in Brazil during the trial; whether tofacitinib offers benefit in addition to established antiviral treatment requires further study.
- Whether Janus kinase inhibitors are superior or additive to other immunomodulatory therapies (for example, the interleukin-6 inhibitor tocilizumab) is unknown.

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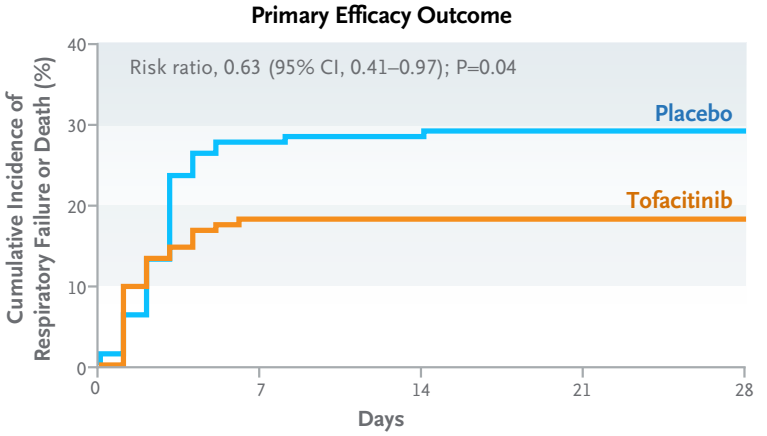

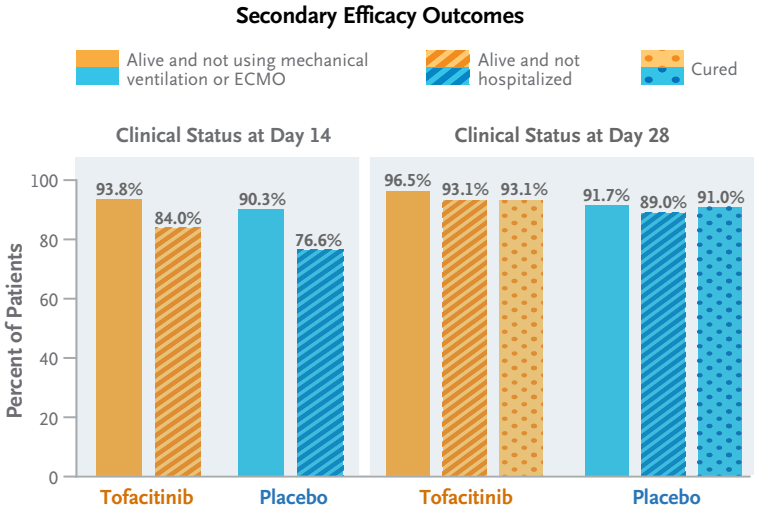

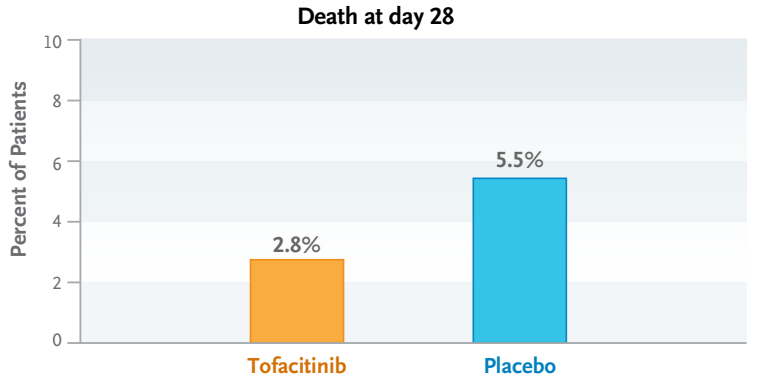

CONCLUSIONS

In patients hospitalized with Covid-19 pneumonia, tofacitinib was superior to placebo in reducing the incidence of death or respiratory failure through 28 days of follow-up.