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Tenofovir Disoproxil Fumarate
A Viewpoint by Anil Kumar

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The search for additional anti-HIV drugs to combat AIDS is one of the foremost challenges facing us today. Tenofovir disoproxil fumarate (tenofovir DF) is a new addition to the therapeutic regimens against HIV. It is a prodrug of tenofovir, which exhibits activity against HIV reverse transcriptase. Tenofovir DF has greater inhibitory activity than tenofovir and also exhibits strong synergistic activity in combination with zidovudine, amprenavir, nevirapine and delavirdine, and mild to moderate synergistic inhibition with didanosine, nelfinavir and adefovir. Tenofovir DF has shown activity against several laboratory and clinical isolates of HIV that are resistant to zidovudine, didanosine, zalcitabine and multinucleoside, albeit at a reduced level compared with that against wild-type virus. Few patients receiving tenofovir DF in clinical trials developed the K65R mutation which is most commonly associated with tenofovir resistance *in vitro*. Tenofovir DF-mediated resistance appears to develop slowly when compared with resistance to many other antiretrovirals.

The most common adverse reactions in patients receiving tenofovir DF include mild to moderate gastrointestinal events, such as nausea, diarrhoea, vomiting, and flatulence. It is currently contraindicated in patients with renal impairment and/or those who develop any sign suggestive of lactic acidosis.

The US Food and Drug Administration has approved tenofovir DF for combination therapy with other antiretrovirals. Overall, tenofovir DF is an exciting addition to the anti-HIV armamentarium. In particular, because of the apparently slow development of resistance it provides an additional containment strategy for the control of multidrug-resistant HIV-1. At present tenofovir DF is recommended only for adult patients, however, clinical trials in children are underway. Future research will also determine whether tenofovir DF can block or reduce the vertical transmission of HIV. ▲