Impact of Mass Rape on HIV Incidence and Prevalence in Conflict Situations: Mathematical Analysis of the War in Tigray, Ethiopia

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Abstract : The circumstances of war and conflict have long been associated with concerns about heightening HIV infection due to the use of sexual violence and rape as a weapon of war and lack of health services access to the patients with HIV as well as sexual violence and rape victims. This paper examines the impact of war related mass rape on HIV incidence and prevalence in the war ravaged Tigray, Ethiopia. Risk equation model and uncertainty analyses with sampled ranges of parameters were employed using data from WHO, Ethiopian Public Health Institute and Ethiopian Central Statistical Agency was used. Our analysis indicated that the mass rape committed in Tigray could cause an increase of incidence and prevalence by a median of 63.01% and 1.14% respectively. The significant increase in HIV incidence and prevalence due to mass rape demands a special attention including region wide improved surveillance and tracing of rape survivors. Furthermore, HIV prevention and treatment strategies such as delivery of emergency health service, providing pre and post exposure treatments on the basis of human rights should priority of governmental and nongovernmental organizations in a conflict situation.

Keywords : conflict situation, mass rape, HIV, mathematical model, uncertainty analysis

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