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Bifurcation analysis of cervical cancer mathematical modelling

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In Noor Asih *et al.* (2016) already given mathematical modelling as the dynamic of HPV infection on cervical cancer. Also given five scenarios for the existence of equilibrium points and their local stability. From the analysis of the system it is found the basic reproduction number is depends on the infection rate, the number of new virion that produce by infected cells, the death rate of virus, the growth rate of infected cells and progression rate. The existence and the local stability of equilibrium points are depend on basic reproduction number, the growth rate of pre-cancer cells and invasion rate. So we predict that there are some bifurcation parameters on that model. While we do some simulation by continuing those parameters we found some bifurcation such as fold bifurcation, cusp bifurcation and zero Hopf bifurcation. Further we analyze domain of each bifurcation parameter.

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