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两类易感者具垂直传染和预防接种的SIRS传染病模型

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摘要 讨论了具有连续预防接种和脉冲预防接种且具有垂直传染的双线性SIRS传染病模型,
分别给出了SIRS传染病模型基本再生数.利用Liapunov 函数方法和LaSalle不变原理证明了连续预防接种
下无病平衡点和正平衡点的全局稳定性;利用脉冲微分方程的Floquet 乘子理论和比较定理,
证明了无病周期解的存在性和全局稳定性.

关键词 传染病模型, 连续接种, 脉冲接种, 周期解, 稳定性.

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The Two SIRS Epidemical Models with Vertical Infection and Vaccination in the Easily Infected Groups

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Abstract The SIRS epidemical models with continuous and impulsive vaccinations are discussed. The reproduction numbers corresponding to those two models are given. A complete global analysis is given to the continuous vaccination models by using a Liapunov function and a Lasalle invariable theory. In the SIRS epidemical models with impulsive vaccinations, the existence and global stability of the disease-free periodic solution is proved by using a Floquet multiplication theory and a comparative theorem.

Key words Epidemical models continuous vaccination impulsive vaccination periodic solution global stability.

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