Quasilinearization of the Initial Value Problem for Impulsive Differential Equations with Multi-Point Delay Jump Conditions

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An initial value problem for nonlinear impulsive differential equations with jump conditions at several delay time points is studied. An algorithm for constructing successive approximations of the solution of the considered problem is given. This algorithm is based on the method of quasilinearization. Every successive approximation is the unique solution of an appropriately chosen initial value problem for linear impulsive differential equation with multi-point delay jump conditions. Also, every approximation is a lower/upper solution of the given problem. The rapid convergence is proved.