We study the behaviour of solutions for a 3-dimensional system of differential
equations with discontinuous right hand side in the neighbourhood of the origin. Using
Bequivalence
of that system to an impulsive differential equation [3, 4], existence of a center
manifold is proved, and then a Hopf bifurcation theorem is provided for such equations
in the critical case. The results are apparently obtained for the systems with
dimensions
greater than two for the first time. Finally, an appropriate example is given to illustrate
our results.