We consider the problem of using statistical methods to test for an association between a disease and a genetic marker in a case-control design in which some individuals are related. Using related individuals in case-control studies has a number of compelling advantages. When related individuals are included in a genetic study, correlations among relatives must be taken into account to ensure validity of the test. We first give an overview of proposed methods when the genealogy of individuals in a study is completely specified. We then consider the case when the genealogy is incomplete and present a new approach to this problem. (Received September 18, 2007)