The concept of co-integration processes is one of the most used concepts in economics and finance. Mainly, researchers are interested in the behavior of the estimators of the model parameters. In this paper, we will investigate the asymptotic behavior of the estimators of an infinite-order co-integrated vector autoregressive series under nonindependent errors by showing its asymptotic distribution. Using this result, we will construct a Likelihood Ratio (LR) test of the co-integration rank. One can also develop a method under unrestrictive assumptions to select the autoregressive order. Monte Carlo experiments illustrate the finite sample performance of the LR test.