Int J Hum Genet, 1(4): 263-270 (2001)
PRINT: ISSN 0972-3757 ONLINE: ISSN 2456-6330
DOI: 10.31901/24566330.2001/01.04.05

Segregation Analysis of Gastric Cancer in a Japanese Population

Masao Kanamori, Audrey H. Schnell, Manami Inoue, Yoshitaka Yamamura, Youjie Wang, Mizue Suzuki, Hiroichi Takeuchi, Kazuya Shinmura, Jun Yokota, Kazuo Tajima, Robert C. Elston and Haruhiko Sugimura

Affiliations of authors: M. Kanamori, M. Suzuki, H. Takeuchi (Department of Public Health), Y. Wang, K. Shinmura, H. Sugimura (Department of Pathology), Hamamatsu University School of Medicine, Hamamatsu, Shizuoka, Japan; M. Inoue, Y. Yamamura, K. Tajima, Division of Epidemiology and Prevention, Aichi Cancer Center Research Institute, Japan; J. Yokota, Biology Division, National Cancer Center Research Institute, Tokyo; A.H. Schnell, R.C. Elston, Department of Epidemiology and Biostatistics, Case Western Reserve University, Cleveland, Ohio, USA

KEY WORDS Mode of inheritance; multifactorial; age of onset

ABSTRACT Though its incidence and mortality have declined, gastric cancer is still the most common type of cancer in Japan. The cause of gastric cancer appears to be both genetic and environmental, with the possibility that the differentiated (internal) type is more environmentally determined than the non-differentiated (diffuse) type. Prior to this study, no formal segregation analysis of gastric cancer in Japan has been performed. Segregation analysis of gastric cancer that allowed for variable age of onset was performed on 851 two-generational pedigrees ascertained via gastric cancer probands collected from the Hospital based Epidemiological Research Program in the Aichi region of Japan. Families were classified based on the proband's histopathological classification of having either differentiated type or non-differentiated type of cancer. A random no major effect hypothesis was rejected, as was a purely recessive or dominant hypothesis. The most parsimonious model was one of purely multifactorial inheritance with males having a higher susceptibility than females. Under a model where genotype influences age of onset, a dominant or recessive mode of inheritance with multifactorial effects also fitted the data. In addition, the analyses were performed separately for the differentiated type and the non-differentiated type and homogeneity was not rejected.

Home Back