Linkage analysis of neurofibromatosis

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SUMMARY Linkage analysis of neurofibromatosis was performed using genes on chromosomes 1, 8, 11, and 12. No linkage was found between NF and C-myc, AT 3, IGF-1, PTH, and gamma globin genes. Evidence for linkage was found between C-ets 1, on the long arm of chromosome 11 and NF in two families with a lod score of 1.88 at θ=0. More families are being studied to confirm this linkage.

Neurofibromatosis (NF) is one of the common autosomal dominant neurological disorders with a frequency of approximately 1 in 3000. The disease is mainly characterised by café au lait spots and neurofibromas. These patients have an unusually high frequency of malignancy compared to the normal population. The intriguing question is, what gene do they carry that predisposes them to malignancy? In order to localise the gene for NF, linkage analysis using DNA markers was performed.

Three multi-generation families shown in table 1 were used.

Oncogene C-myc, insulin like growth factor-1, antithrombin-3, parathyroid hormone, and gamma globin genes were not linked to neurofibromatosis in our families. The lod scores are shown in table 2.

We found a positive lod score of 1.88 with oncogene C-ets and another oncogene C-ets in two informative families (no recombinants observed in six informative meioses). These data provide suggestive evidence that the NF

References


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gene is linked to C-ets 1 on the long arm of chromosome 11 in these families. More families are being studied to confirm the linkage of NF to C-ets 1.

References

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Genetic linkage studies with neurofibromatosis: the question of heterogeneity

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SUMMARY: Three new families are reported for standard gene linkage markers and classical peripheral neurofibromatosis (Von Recklinghausen disease). Additional data are summarised for the exclusion map. One family gives slight evidence of close linkage with the Gc locus on chromosome 4, raising again the question of possible genetic heterogeneity in NF.