SCREENING

Chromosomal aberrations in patients with benign, sporadic pheochromocytomas

Benign, sporadic pheochromocytomas can be subdivided into two types that are related to the same chromosomal aberrations as are the two major groups of hereditary pheochromocytomas. This finding demonstrates that sporadic pheochromocytomas probably follow similar pathways of tumorigenesis as hereditary ones.

Pheochromocytomas are often associated with hereditary tumor syndromes, such as multiple endocrine neoplasia type 2 and von Hippel–Lindau disease, but they can also occur sporadically.

Previous studies, which used conventional comparative genomic hybridization (CGH), showed that pheochromocytomas can be related to chromosomal aberrations in various regions, especially in 1p, 3p, 3q, and chromosome 22. To obtain more detailed information on these aberrations, van Nederveen *et al.* used a new, high-resolution method called array CGH

in 36 patients with sporadic, benign pheochromocytomas.

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“In contrast to what we expected, we did not find small losses or gains, but confirmed the picture of losses and gains that were detected in previous studies using conventional CGH,” says Francien H. van Nederveen (Erasmus MC, The Netherlands). The high-resolution analysis revealed loss of 1p with or without loss of 3q in 20 of the 36 cases, and loss of 3p with or without loss of 11p in 11 cases. These patterns are comparable to those that are found in patients with pheochromocytomas related to multiple endocrine neoplasia type 2 and von

Hippel–Lindau disease, respectively. In addition, loss of 22q and loss of 21q were observed in more patients than expected, which suggests a greater involvement of these regions in the development of pheochromocytomas than previous studies did.

As a next step, the investigators would like to compare the patterns of chromosomal aberrations in patients with malignant pheochromocytomas with those in patients with benign sporadic pheochromocytomas. “Eventually, we hope to come up with a diagnostic test by which clinical behavior of pheochromocytoma can be assessed in routine clinical practice, which will then influence postoperative clinical management,” explains van Nederveen.

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Original article van Nederveen, F.H. *et al.* Array-comparative genomic hybridization in sporadic benign pheochromocytomas. *Endocr. Relat. Cancer* **16**, 505–513 (2009).