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SIGNIFICANCE OF I-131 META-IODOBENZYLGUANIDINE SCINTIGRAPHY IN DIAGNOSING NEUROBLASTOMA. I. Odano, M. Takeda, K. Sakai and M. Kimura. Niigata University School of Medicine, Department of Radiology.

Six patients with pathologically proved neuroblastoma (stage I, II and IV) had undergone I-131 meta-iodobenzylguanidine (MIBG) scintigraphy, which has been recently used for diagnosis of pheochromocytoma. Abnormal accumulation of I-131 MIBG was not seen in two patients with negative urinary VMA, but was observed in the remainders with positive urinary VMA. The smallest primary tumor detected on scintigram was almost 3.5 cm in diameter. This scintigraphy was considered to be useful in determining the size, localization and metastasis of neuroblastoma. Because of low mechanical resolution of I-131 nuclide, however, some difficulties were noted in the differential diagnosis between tumor images and normal organ accumulation in small-sized child of neuroblastoma.

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EXPERIENCE WITH I-131-MIBG IMAGING OF TUMORS ARISING FROM THE NEURAL CREST.

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I-131-MIBG imaging was performed to locate tumors in 16 patients with histologically or biochemically proven tumor arising from the neural crest. Images were obtained 24 and 48 hours after i.v. injection of 10 μ Ci/kg of I-131-MIBG. An intense uptake of I-131-MIBG in a tumor was observed in 4 patients with pheochromocytoma and high levels of serum catecholamines. In addition a moderate uptake was shown in the thyroid medullary carcinoma of a patient with Sipple's syndrome. I-131-MIBG concentrated in the abdominal neuroblastomas of 3 untreated patients with elevated urinary excretion of VMA. No uptake was observed in 4 patients who had possibly been cured by surgery and chemotherapy or radiotherapy for neuroblastoma. No accumulation of I-131-MIBG was seen in a nonfunctioning paraganglioma. A moderate uptake in a tumor was noted in one of 2 untreated patients with small cell carcinoma. No abnormal uptake was observed in the remaining 2 patients who had received chemotherapy or radiotherapy for small cell carcinoma. These results suggest that I-131-MIBG imaging is useful for locating catecholamine producing tumors and also has the potential to locate the other tumors arising from the neural crest.

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CLINICAL USEFULNESS OF I-131 MIBG SCINTIGRAPHY: EXPERIENCE IN 6 CASES. H. Ito, Y. Habuchi, H. Yamaguchi, Y. Saiki, M. Hino, K. Ikekubo, K. Yamaoka, S. Kuroki, T. Tsutsui, M. Mizue, T. Ishihara, N. Waseda and K. Goji*. Kobe General Hospital and *Kobe Children's Hospital, Kobe.

A newly developed radiopharmaceutical agent, I-131 MIBG has been used for scintigraphic localization and treatment of pheochromocytoma and neuroblastoma.

A patient with neuroblastoma and 5 patients with pheochromocytoma were studied by I-131 MIBG scintigraphy. Whole body scintigraphic images were taken 24, 48 and 72 hours after the administration of 500 μ Ci of I-131 MIBG. The 24 urinary catecholamines and their metabolites levels were much increased in all cases.

I-131 MIBG scintiscans of a patient with neuroblastoma revealed both primary abdominal and a distant orbital tumor. Follow-up study of I-131 MIBG scans after combination of external radiotherapy and chemotherapy showed the reduction and disappearance of tumors. Intense uptake of I-131 MIBG was observed in all pheochromocytoma patients (4 intra and 1 extra-adrenal). In those 5 patients, an adrenalectomy was performed successfully.

We conclude that I-131 MIBG scintigraphy is easy to perform, safe, specific and clinically very useful for localizing neuroblastoma and pheochromocytoma and follow-up of neuroblastoma.

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CLINICAL USEFULNESS OF I-131 MIBG SCINTIGRAPHY.

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We have performed I-131 MIBG scintigraphy in 16 patients, in whom 9 cases showed evident accumulations; five were pheochromocytomas, four were neuroblastomas (pre-operation) and two were thyroid medullary cancers. Other 7 cases showed no accumulations; two were neuroblastomas after operations, one was adrenal cancer, and four were primary hypertension.

One case of pheochromocytoma was demonstrated more clearly in 72 hours or 144 hours than in 24 hours or 48 hours after injection.

One case (Stage 4) of neuroblastomas was demonstrated various accumulations parallel to the tumor activities after the chemotherapies and the radiations.