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 remaining 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.

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

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.

We have performed I-131 MIBG scintigraphy in 16 patients, in whom 9 cases showed evident accumulation for 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 hypertensions.

One case of pheochromocytomas 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.