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 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 μCi 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.