Clinical Evaluation of Tumor Scanning with ^{57}Co-Bleomycin

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Tumor-localizing properties of ^{57}Co-bleomycin were studied on twelve patients with various malignant tumors of the lung. Distribution of this radioactive substance in human body was also studied in an autopsied case. Scans were performed 24 hours after intravenous administration of 400–500 μCi of ^{57}Co-bleomycin either with 3 in or 5 in NaI csrystal scintiscanner.

All of the eight patients with primary lung cancer had positive scans. Two cases of metastatic lung cancer (carcinoma of the rectum and carcinoma of the maxilla) also gave positive scintigrams. In a case of multiple miliary metastasis of thyroid cancer and in a case of reticulosarcoma, no definite accumulation was observed. These results were quite similar when these patients were studied with ^{67}Ga-citrate.

^{57}Co-bleomycin has been known to accumulate in kidneys and bladder when scanned 24 hours after administration. In some cases, marked localization was also seen in testicles and penis. Though slight incorporation was observed in the liver, it was obviously less than that seen with ^{67}Ga scan. No uptake was demonstrated in skeletal system and in gastrointestinal tract.

Distribution of ^{57}Co-bleomycin among various organs was studied in an autopsied patient with advanced lung cancer who died 15 days after the administration of the radioactive substance. Relatively high radioactivity was present in the tumor mass and in the liver. Stomach and interestines showed the least radioactivity.

It seems that ^{57}Co-bleomycin is superior to ^{67}Ga-citrate in scintigraphic diagnosis of malignant tumors of the lung, as well as in detecting metastases in other places, especially in the infradiaphragmatic region.