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GASTRIC EMPTYING TIME(GET) WITH Tc-99m-LABELED SEMISOLID MEAL IN DIABETIC PATIENTS. A.Tada, K.Koizumi, T.Aburano, H.Bunke, N.Tonami, K.Hisada, I.Araki\* and T.Ueno\*. Department of Nuclear Medicine and Second Internal medicine\*, Kanazawa University.

The purpose of this study is to present the result of GET measurements in diabetic patients. The correlation between GET and complications, fasting blood sugar, duration of disease, age and sex was evaluated. Included in this study were 21 diabetic patients. Fourteen patients had diabetic complications such as peripheral, autonomic neuropathy, nephropathy and retinopathy. Following an overnight fast, semisolid test meal mixed with 200  $\mu$ Ci of Tc-Sn-99m-colloid was ingested by the patients. In nine normal volunteer, the GET range was from 47 to 78 minutes ( $62.5 \pm 7.7$ ). In the patients with diabetic complications, particularly with triopathy, GET was significantly prolonged compared to those of normal subjects and diabetic patients without complication. On the contrary, four out of seven patients without complication showed rapid emptying than normal subjects. This rapid emptying may reveal the early stage of pathophysiological change in diabetics. No correlation between GET and FBS, duration of disease, age and sex was seen.

This test of radiolabeled semisolid meal was found to provide a convenient, safe and effective diagnostic tool examine gastric emptying function in diabetic patients.

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FUNDAMENTAL STUDIES ON DETECTION OF GASTRO-INTESTINAL BLEEDING WITH RADIOPHARMACEUTICALS. S.Taniguchi, H.Shimizu, S.Tanaka, A.Sasaki, H.Sawa, H.Ochi and Y.Onoyama. Osaka City University School of Medicine. Osaka.

For the detection of gastrointestinal bleeding, various kinds of radiopharmaceutical have been used. The blood clearance and target-to-background ratios of each radiopharmaceuticals are different. As an experimental study, we used rabbit and evaluated the blood clearance sequentially and biodistribution at 6 and 24 hours after administration of  $^{111}\text{In}$ -oxine RBC,  $^{99\text{m}}\text{Tc}$ -in vivo labeled RBC (Pavel's method, McKusick's method),  $^{99\text{m}}\text{Tc}$ -in vitro labeled RBC,  $^{99\text{m}}\text{Tc}$ -HSA,  $^{99\text{m}}\text{Tc}$ -fibrinogen and  $^{99\text{m}}\text{Tc}$ -sulfur colloid. While we compared the identification of GI bleeding of the animal model, rabbits with simulating lower GI bleeding. The results were as follows; The best radiopharmaceuticals were  $^{111}\text{In}$ -oxine RBC and  $^{99\text{m}}\text{Tc}$ -in vitro labeled RBC, the second best was  $^{99\text{m}}\text{Tc}$ -in vivo labeled RBC (McKusick's method).  $^{99\text{m}}\text{Tc}$ -HSA is one step for preparation and easy to use, but the background activity was relatively high.  $^{111}\text{In}$ -oxine RBC and  $^{99\text{m}}\text{Tc}$ -in vitro labeled RBC were the most suitable radiopharmaceutical for the detection of GI bleeding, but the preparation of them are a little troublesome. We conclude that  $^{99\text{m}}\text{Tc}$ -in vivo labeled RBC (especially McKusick's method) is an excellent radiopharmaceutical to detect GI bleeding.