

## Immunoscintigraphy of Colorectal Carcinomas and Recurrences with A Technetium-99m-Labeled Monoclonal Anti-CEA-Antibody (MAB XBW 431/26)

**TO THE EDITOR:** We have read the paper by Bischof-Delaloye et al. (1) on anti-CEA immunoscintigraphy with iodine-123 ( $^{123}\text{I}$ ) labeled monoclonal Fab fragments (Mab 35) with great interest. A closer inspection of the patient population reveals that a considerable number of patients in group A (suspected primary tumors) as well as in groups B and C (probable and questionable tumor relapse, respectively) presented with metastases, predominantly in the liver. The authors do not differentiate for immunoscintigraphic detection of metastases in the liver between smaller (<1 cm) and larger (>1 cm) lesions, in contrast to a study comparing ultrasonography (US) and computed tomography (CT) (2), which is quoted in the paper.

Having studied the article by Bischof-Delaloye et al., we would like to ask the authors for their comments on the following questions concerning radioimmunoscintigraphy (RIS) of colorectal carcinomas and recurrences.

1. What is the rate of right-positive RIS findings in metastases of the liver (<1 cm) in comparison with US and CT? Does the use of  $^{123}\text{I}$ -labeled Mab 35 lead to a positive visualization of larger liver metastases, or do these appear as cold lesions?
2. In view of the state-of-the-art of RIS, where do the authors see its clinical value, in other words, when should RIS be used in the follow-up of colorectal carcinomas?

We believe that these questions are of importance, since RIS, being a rather elaborate technique, should provide additional information to conventional diagnostic procedures, such as endoscopy, US, or CT, which is of clinical and therapeutic relevance for the surgeon.

According to our experience with a technetium-99m- ( $^{99\text{m}}\text{Tc}$ ) labeled monoclonal anti-CEA antibody ( $^{99\text{m}}\text{Tc}$ -Mab BW 431/26, Behringwerke, Marburg, FRG), the domain of RIS is not so much the diagnosis of primary tumors or the detection of large metastases, but rather the diagnostic confirmation of early recurrences (differential diagnosis between scar tissue and locoregional recurrences) when endoscopic or CT findings are unclear (3).

We used  $^{99\text{m}}\text{Tc}$ -labeled Mab BW 431/26 in a prospective study including 78 patients for detection of colorectal carcinomas (n = 37) and confirmation or exclusion of locoregional recurrences (n = 41), respectively.

Whole-body scans were obtained in all patients in anterior and posterior projection 5 hr postinjection of 1100 MBq  $^{99\text{m}}\text{Tc}$ -Mab BW 431/26, (1 mg antibody). SPECT imaging of the abdominal region was done 6 and 24 hr postinjection (Elscent Apex 409 AG; matrix 64 × 64; Hanning filter; attenuation correction). Despite high sensitivity in the detection of

colorectal carcinomas (92%), RIS did not furnish additional data for the diagnosis of primary tumors exceeding information already obtained by conventional diagnostic procedures.

On the other hand, RIS was the determining procedure for confirmation or exclusion of locoregional recurrences in cases with unclear coloscopic and/or CT findings after surgery for colorectal carcinoma. In a total of 41 patients studied, RIS detected locoregional recurrences in 23 of 25 cases and excluded a malignancy in 14 of 16 cases (scar or inflammatory tissue). All results were confirmed by biopsy and/or surgery. Interpretations of RIS were false-positive in two cases and false-negative in two cases (sensitivity 92%, specificity 87%). The serum CEA levels of patients with recurrences were clearly elevated in 10 cases, marginally elevated in 7 cases, and within the range of normal in 6 cases. In two patients, liver metastases were visualized by RIS as cold lesions with a hot margin; however, these lesions had already been diagnosed by US. According to our results obtained with  $^{99\text{m}}\text{Tc}$ -Mab BW 431/26, RIS is the method of choice for early detection of locoregional recurrences in the follow-up of patients with colorectal carcinomas. We propose that RIS also be performed when CT findings are unclear and serum CEA levels are within the range of normal, since there is no correlation between serum CEA levels and RIS findings.

## REFERENCES

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3. Lind P, Langsteger W, Költringer P, et al. Tc-99m labeled monoclonal anti-carcinoembryonic antigen antibody (BW 431/26): clinical results in the detection of colorectal carcinomas and recurrences. *Scand Gastroenterol* 1989; 26:1205-1211.

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**REPLY:** The aim of our study (1) was not to assess the detectability of liver metastases according to the size of the lesions, but to define the interest of radioimmunoscintigraphy (RIS) in the management of colorectal cancer patients with respect to the presently available diagnostic methods. In this study design, surgical confirmation of RIS findings was usually not obtained in a time interval which would have allowed estimation of tumor size at the moment of RIS. We can, therefore, only assume that liver metastases, which were detected by RIS earlier than by other methods, especially ultrasonography (US) or computer-assisted tomography (CT), were equal or smaller than 1.5 cm in diameter. In the patient