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Comparison of Tc-99m HIG and Ga-67 citrate in the evaluation of bacterial abscess in a rat model

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Tc-99m labeled polyclonal human immunoglobulin (HIG) has been shown to be able to localize an inflammatory site. There are several possible explanations for HIG accumulation at focal infection sites such as increased vascular permeability, binding of the Fc part of Ig to Fc receptors of leucocytes and binding directly to bacteria. In this study, we compared Tc-99m HIG and Ga-67 citrate scintigraphy in localizing acute bacterial abscesses induced by *E. coli* and *S. aureus*. Serial scintigrams were performed at 1, 4, 24 hr after injection. Tc-99m HIG showed greater accumulation at all times with both infectious agents than Ga-67 citrate ($p < 0.05$). While Tc-99m HIG showed greater accumulation in *S. aureus* than *E. coli* ($p < 0.05$), there was no statistically significant difference between *E. coli* and *S. aureus* ($p > 0.05$) by Ga-67 citrate. Our study suggests that Tc-99m HIG is a superior agent to Ga-67 and bacterial affinity can be a factor responsible for HIG accumulation at focal sites of inflammation.

Key words: Tc-99m HIG, Ga-67 citrate, abscess