Hepatic Function Test with $^{131}$I (Monoiodide) BSP

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$^{131}$I labeled monoiodide BSP was prepared. Its structure was confirmed by nuclear magnetic resonance determinations and by elementary analysis. For comparison, $^{131}$I-diiodinated BSP, $^{131}$I-rose bengal, $^{35}$S-BSP and BSP were used. $^{131}$I monoiodide BSP showed slower blood clearance than $^{35}$S-BSP and BSP. However, the monoiodide was cleared and excreted from the blood through the liver into the bile more rapidly than $^{131}$I-diiodinated BSP and $^{131}$I-RB except in the case with Dubin Johnson syndrome. BSP was found useful in sequential scanning for the differential diagnosis of medical, surgical and constitutional hyperbilirubinemia and in simplified retention testing. The latter is performed by injecting $0.5 \text{mg}$ of $^{131}$I-BSP in volume of $0.5 \text{ml}$ equivalent to $50$–$100 \mu\text{Ci}$ intravenously. Thirty minutes later $2$–$3 \text{ml}$ of blood was drawn from antecubital vein of other side for the determination of 30 min retention of $^{131}$I-BSP.

Hundred fifty three cases were studied. Normal control value is $2.46 \pm 0.66\%$ with upper range of $4\%$. Cases with hepatitis, liver cirrhosis, obstructive jaundice and malignancy showed reasonal increased retention of the dye. The correlation with conventional BSP 45 minutes retention test is good ($r=0.782$).

The advantages of this dye are 1. BSP is a dye well evaluated in the last several decades, 2. because of its radioactive label the retention test is easily performed with tracer dose loading, even in cases with jaundice.

Statistics at the Central Clinical Pathology Lab. indicated the marked decrease in the number of the conventional BSP test because of its side effects.

$^{131}$I-BSP retention test is expected to replace the conventional BSP retention test.

A Simpler Method by Using $^{131}$I-BSP in Liver Function Test

Metabolism of $^{131}$I-BSP

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Purpose:
To find a simpler method of liver function test, we tried to check the decreasing rate and resting rate of $^{131}$I-BSP in the blood by using the external counting method and by sampling counting method with well type-scintillation counter.

Method:
1 \mu Ci/Kg of $^{131}$I-BSP was injected i.v. and the decreasing curve (Y) was recorded by