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Letter to the Editor

Bile-acid content of a commercial secretin

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Secretin, produced by the Boots Co., is an adsorbate on ox and pig bile acids of secretin from pig duodenum prepared after the method of Crick et al (1950). It is to be expected that this product will not only stimulate the secretion of fluid and electrolytes by the pancreas and the liver but that it will also increase the secretion of bile acids in bile. A recent study in rats showed that the infusion of secretin (Boots) did indeed increase biliary bile acid secretion but implied that this might be due to unidentified contaminants other than bile acids, in that the bile acid content of the batch of secretin used was found to be negligible (Romanski & Bochenek 1983).

We have measured the total bile acid content of several batches of secretin donated by the Boots Co. using 3-hydroxysteroid dehydrogenase (Rutishauser & Stone 1975) and have separated the bile acids by thin layer chromatography (Panveliwalla et al 1970). Each batch contained appreciable mounts of bile acids (Table 1). The amount present has changed in that batches from the mid 1970s contained less bile acid as judged by the data for Batch No. 5967 and the estimate of 0·3 μmole/unit quoted elsewhere for Batch No. 5772 (Rutishauser 1976). Chromatographic analysis revealed the presence of at least five different conjugated bile acids, including taurine and glycine conjugates of cholic acid and two dihydroxy bile acids in recent batches. Only trace amounts of unconjugated bile acids were found.

Using samples of Batch No. 93102 we have compared the output of bile acids in bile in guinea-pigs in response to the infusion of the secretin (1·2 Crick, Harper, Raper units kg^{-1} min^{-1}) with the amounts of bile acid known to be present in the hormone preparation. Both in-vivo, in animals under anaesthesia (n = 3), and in-vitro, in the isolated perfused liver (n = 3), biliary bile acid output increased in response to the infusion of secretin. However the increase could be fully accounted for by the bile acid present in the secretin preparation. At steady state the increase in bile acid secretion in bile amounted to 69·3 ± 10·7% (mean ± s.d.) of that infused. This recovery rate is similar to that found for individual bile acids infused in guinea-pigs (Rutishauser et al 1980). In-vitro, the bile acids secreted in bile during secretin infusion matched those present in the secretin preparation. Similar results were found in-vivo with the exception that one of the bile acids present in the preparation (believed to be glycohyodeoxycholic acid) did not appear in bile.

We therefore can find no evidence for the existence in the preparation of secretin of stimulants of bile acid secretion, other than the bile acids themselves. The product does contain significant amounts of conjugated bile acids (70·0 ± 4·8% of the contents of each vial by weight; mean ± s.d.). Although the amounts present per vial (50 mg) are small with respect to the size of the bile acid pool in man (2·5–3 g) (Northfield & Hofmann 1975) they should be taken into account in any studies of hepatic function both in man and in animals.

Table 1. Analysis of secretin (Boots)

Batch number	Contents per vial*	
	Weight (mg)	Bile acid (μmol)
5967	33·2	49·4
92278	64·7	96·0
92503	66·9	101·0
92665	75·0	100·0
92666	79·8	103·0
93102	73·0	102·9
93454	69·0	89·0

* Each vial contained 90–100 units of secretin (Crick et al 1950).

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