Reviewer's report

Title: Tyrosine hydroxylase activity in the endocrine pancreas: changes induced by short-term dietary manipulation

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Reviewer: Prof Peter Thams

Level of interest: A paper whose findings are important to those with closely related research interests

Advice on publication: Unable to decide on acceptance or rejection until the authors have responded to the compulsory revisions

The role of catecholamines in paracrine regulation of glucose-induced insulin release is addressed. It is demonstrated that one week carbohydrate feeding, leading to diminished glucose-induced insulin release, is accompanied by an increase in tyrosine hydroxylase activity in rat pancreatic islets. The causal link between these two phenomena is not explored but it is suggested that the decline in insulin release may be explained by a negative modulatory role of catecholamines stored in secretory granula and released in a glucose-dependent manner.

In essence the same data have been published previously in abstract form (Diabetologia 1996, 39 (Suppl. 1): A123). According to the original abstract, carbohydrate feeding as described in the present manuscript also decreased islet catecholamine content in spite of increased tyrosine hydroxylase activity and diminished insulin release. Furthermore in that apparently more extensive study, tyrosine hydroxylase activity was shown to be of comparable magnitude in control and solarectomized rats.

Compulsory revisions:

1. The significance of increased tyrosine hydroxylase activity for diminished insulin release after carbohydrate feeding should be explored, e.g. by use of sympathectomized rats or by use of tyrosine hydroxylase inhibitors.
2. It should be demonstrated whether diminished insulin release after the present feeding regime is to be explained by changes in islet insulin content and DNA content.
3. Data regarding islet catecholamine content should be included and the significance of endogenous catecholamines for diminished insulin release after carbohydrate feeding should be explored, e.g. by use of adrenergic antagonists.
4. The abstract in Diabetologia should be cited.

Competing interests:
None declared.