Reviewer's report

Title: Fecal pancreatic elastase-1 levels in older individuals without known gastrointestinal diseases or diabetes

Version: 1 Date: 17 October 2010

Reviewer: Nils Ewald

Reviewer's report:

General comments
Herzig and coworkers report about fecal pancreatic elastase-1 levels in older individuals without known gastrointestinal disease or diabetes mellitus.

Structural changes of the pancreas as a natural aging process are well known. The effect of aging on exocrine pancreatic secretion is discussed in numerous studies, which are addressed by Herzig et al. in their manuscript. Although there is a number of studies showing no decrease of exocrine pancreatic function with age, the majority of studies suggests a declining exocrine pancreatic function with age. Herzig et. al have addressed this question once again, measuring exocrine pancreatic function by using fecal elastase-1, which has been established as a good and noninvasive marker of exocrine pancreatic function.

It is important to stress that Herzig et al. included only patients without known diabetes mellitus, since diabetes mellitus is a condition that can be found quite commonly among the elderly and is associated with a decreased exocrine pancreatic function itself. There are several other studies addressing the problem that have unfortunately not applied these inclusion/exclusion criteria and therefore must be interpreted with caution because of possible cofounding effects.

Additionaly the study group of Herzig set up a control group of 53 younger individuals which does not seem mandatory to address their question but certainly helps to improve the quality of the study.

The results of Herzig and al. are well comparable with most of the existing studies on the subject and also with the personal experience and data of the reviewer and therefore do once again stress the prevalence of exocrine pancreatic insufficiency in the elderly.

The study certainly addresses no completely new clinical point or provides a major pathbreaking contribution that might help to change everyday clinical practice, yet it does help to stress a very important subject that is usually neglected in gastroenterology and/or geriatrics. Therefore the study is important and definitly deserves attention.

Herzig et al. stress once again the importance of exocrine pancreatic insufficiency in the elderly which is usually not thought of. Gastrointestinal complaints or weight loss in the elderly are usually attributed to age or general
condition. The possibility of exocrine pancreatic insufficiency as the underlying cause is usually not thought of. It is important to stress that a simple noninvasive test (fecal elastase-1 testing) might help to detect a possible reason for GI-complaints and weight loss in the elderly. Adequate enzyme replacement therapy must then follow a pathological test and is hence able to improve life quality and nutritional status in the elderly. Additionally it is important to stress that geriatric patients often suffer from quantitative malnutrition which is highly correlated with an increased mortality. Keeping the here presented results of Herzig et al. (and other cited studies) in mind, these patients should also be thoroughly assessed for exocrine pancreatic insufficiency. Furthermore one has to stress that exocrine pancreatic insufficiency is also associated with a decreased vitamin D concentration (qualitative malnutrition). The importance of an adequate vitamin D supply and the multiple beneficial effects of vitamin D in the elderly (not only in respect to bone metabolism) have been addressed in many studies over the last couple of years.

Therefore the reviewer strongly suggest publication of this well-conducted study on a very important subject in this journal.

Detailed comments:

Major Compulsory Revisions

1) Herzig et. al must give data on body weight and/or composition of the study subjects. At least BMI (Min/Max/Mean/Range) of the study subjects and the control group must be given.

This is important since

a) there has been no testing for diabetes mellitus (persons with obesity or elevated BMI might be more likely to suffer from diabetes mellitus)

b) there might be a correlation between exocrine pancreatic function and BMI, which would be very interesting to know.

The authors should than state if there are any statistical correlations between BMI and exocrine pancreatic function. This would additionally improve the quality of the study!

Do the authors have data on malnutrition in those with a decreased exocrine function? This would be very interesting to know.

2) Do the authors have any data on qualitative nutritional state (especially vitamin D levels) of the study subjects? Is there a correlation of exocrine pancreatic insufficiency with decreased levels of vitamin D? Is there a correlation with bone fractures?

If the study group does not have any data on this, this would be a very interesting topic for a follow up study.

The problem of potential qualitative malnutrition (especially on vitamin D – please see available studies) in the elderly must be adequately addressed before being published.

3) It would be very interesting to know how many of the study subjects with
Exocrine pancreatic insufficiency had been diagnosed with "exocrine pancreatic insufficiency" before inclusion into the study. Had even one general physician thought of testing these patients before? Do the authors have the impression the problem is well known among general physicians in care of the elderly? Maybe there could be a short comment about this in the "discussion" section. Additionally, how many of the patients had been treated with pancreatic enzyme because of exocrine insufficiency before the study?

4) If the authors do find a prevalence of 21.7% and none of the subjects has been screened or treated for exocrine pancreatic insufficiency before by the general practitioner or other physicians, that is quite a result suggesting that there is no awareness of this disease among physicians. This is an important point that should also be discussed in the discussion section and since it helps to stress the importance of the study by Herzig et al.

5) Do the authors have data on signs and symptoms of exocrine pancreatic dysfunction (e.g. flatulence, pain, diarrhoea, etc.) of the study subjects. This would help to improve the study further (yet it is not mandatory).

Discretionary Revisions

1) Please change the title of the study from "diabetes" to "diabetes mellitus". Otherwise one might also think of "diabetes insipidus".

2) Unfortunately no laboratory test on blood glucose have been performed in the study subjects. Therefore it is likely that there are some diabetics in the study population. This of course, influences the quality of the study negatively. Yet the authors frankly state this in the discussion section which is important and reflects good research practice. Furthermore, concerning the main conclusion (exocrine pancreatic insufficiency in the elderly is more often than expected) it is after all not very important whether all subjects have been screened for diabetes mellitus or pathological glucose tolerance.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

'I declare that I have no competing interests'