Pancreatic cancer and the use of enzymes:
A review of the literature

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Aims

- Determine evidence behind the use of pancreatic enzyme replacement therapy (PERT) in pancreatic cancer patients.

- Investigate evidence behind dosage recommendations of PERT in pancreatic cancer.
Literature search


- **Evidence based reviews**- Cochrane Library, DARE, DUETs.

- **Databases**- Medline, CINHAL, EMBASE, PubMed.
Guidelines for the management of patients with pancreatic cancer periampullary and ampullary carcinomas (GUT 2005)

- ‘Pancreatic enzyme supplements should be used to maintain weight and increase quality of life’.
- Evidence is graded at A: at least 1 randomised control trial (RCT).
Bruno et al 1998

- Double blind randomised placebo control trial.
- 21 subjects with unresectable cancer of the pancreatic head with biliary stent insitu.
- Subjects were given placebo or PERT therapy.
- All patients received dietary counselling.
Bruno et al 1998

PERT therapy details

- Panzytrat 25000 ‘enteric coated pancreatin microsphere preparation’.
- 25000 PhEur units of lipase.
- 2 capsules given with main meals.
- 1 capsule given with snacks.
- Followed up for 8 weeks.
### Bruno et al 1998

<table>
<thead>
<tr>
<th></th>
<th>PERT subjects</th>
<th>Placebo subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight change</td>
<td>↑ 1.2 % body weight</td>
<td>↓ 3.7 % body weight</td>
</tr>
<tr>
<td>Fat absorption</td>
<td>↑ 12 % fat absorption</td>
<td>↓ 8 % fat absorption</td>
</tr>
<tr>
<td>Energy intake</td>
<td>Total energy intake of 8.42 MJ/day</td>
<td>Total energy intake of 6.66 MJ/day</td>
</tr>
</tbody>
</table>
 Bruno et al 1998

- Only RCT available.
- Very small sample size.
- No power calculation undertaken.
Perez et al 1983

- 12 subjects with pancreatic cancer
- 4 meals per day, 8 pancreatin tablets with each meal.
- 6 subjects with moderate to severe fat malabsorption ‘improved with pancreatin’.
- Subjects with mild fat malabsorption ‘had no improvement’.
- Many problems with study including very small sample size.
Review articles

- No systematic reviews found in Cochrane library specific to pancreatic cancer and PERT.

- Reviews found frequently described authors own practice and lacked supporting references.

- Several review authors quote references which are not specific to pancreatic cancer. (e.g. Ferrone et al 2007)
### Review articles

<table>
<thead>
<tr>
<th>Author</th>
<th>Dose of PERT advocated (units of lipase per meal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith 2008</td>
<td>20000 - 50000</td>
</tr>
<tr>
<td>Damerla et al 2008</td>
<td>50000*</td>
</tr>
<tr>
<td>Nakakura &amp; Warren 2007</td>
<td>25000 - 40000‡</td>
</tr>
<tr>
<td>Keller &amp; Layer 2005</td>
<td>25000 - 40000‡</td>
</tr>
<tr>
<td>Bruno et al 1995</td>
<td>20000 - 70000*</td>
</tr>
</tbody>
</table>

*Authors do not quote supporting references

‡Supporting references are not specific to pancreatic cancer
PERT and pancreatic cancer surgery

- Several authors support the use of PERT post pancreatic cancer surgery due to the level of exocrine insufficiency found in their studies (Tran et al 2008; Matsumoto & Traverso 2006; Ohtsuka et al 2001; Sato et al 1998).

- No studies found advocating specific doses of PERT.
Summary of evidence

- National guidelines and RCT support the use of PERT in pancreatic cancer.
- Lack of studies, specific to pancreatic cancer, investigating specific dosage.
- Some review articles available describing current practice of authors working in this field.
Discussion points

- Should all pancreatic cancer patients receive PERT?
- Level of exocrine insufficiency in pancreatic cancer patients?
- Quality of life?
- Further research?
## Exocrine insufficiency in Pancreatic Cancer

<table>
<thead>
<tr>
<th>Author</th>
<th>% subjects exocrine insufficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matsumoto &amp; Traverso 2006</td>
<td>68 %</td>
</tr>
<tr>
<td>Kato et al 1993</td>
<td>92 % (pre-op)</td>
</tr>
<tr>
<td></td>
<td>80 % (post-op)</td>
</tr>
<tr>
<td>Ihse et al 1977</td>
<td>87 %</td>
</tr>
</tbody>
</table>
Any questions
References

- MATSUMOTO, J. and TRAVERSO, L.W., 2006. Exocrine function following the whipple operation as assessed by stool elastase. Journal of Gastrointestinal Surgery, 10(6), 1225-1229.
References cont.


