Fecal elastase fails to detect steathorrea in patients with locally advanced pancreatic cancer

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Rationale

Steatorrhea is a frequently described symptom in patients with locally advanced pancreatic cancer (LAPC). This is most likely the result of an exocrine pancreatic insufficiency, for which pancreatic enzyme replacement therapy (PERT) is often prescribed. PERT is generally based on clinically reported symptoms, as a standard procedure, or in case of a low fecal elastase-1 (FE1) level (as marker for exocrine pancreatic insufficiency). This study examines if:

- fecal elastase-1 accurately detects steathorrea
- prescription of PERT based on clinical symptoms, standard procedure, or FE1 was justified according to the gold standard: quantitative fecal fat excretion during 3 days.

Methods

Fifteen LAPC patients were included, five patients had already been prescribed PERT based on clinical symptoms or as standard procedure. These 5 patients were required to stop taking PERT at least one day before and during the 3 days of feces collection. Steatorrhea was defined as fecal fat excretion >20 g/d in 3-d fecal collection. (by gold standard method of Van der Kamer).

A FE1 level <200 µg/g was defined as exocrine pancreatic insufficiency (based on local lab reference values). Statistics that capture the performance of FE1 as a diagnostic test for steatorrhea were performed.

Results

FE1 <200 µg/g as a predictor of steatorrhea was false positive in 7 out of 13 patients (54%) (PPV=0.54) and false negative in none of the patients, sensitivity was 100% and specificity 22% (Table 1). Six out of 15 patients (40%) displayed steatorrhea, out of which only one (17%) was on PERT. On the contrary, 4 patients (27%) had been prescribed PERT without objectively displaying steatorrhea.

Table 1: predictive value of Fe-1 for steathorrea

	Steathorrea +	***Steathorrea -***	
*FE1<200µg/g **	*6*	*7*	*13*
FE1≥200µg/g	*0*	*2*	*2*
	6	*9*	*15*

* FE1<200*µg/g indicates pancreatic insufficiency*

Conclusion

Fecal elastase-1 failed to accurately detect steatorrhea in patients with LAPC. Six out of 15 (40%) of the LAPC patients suffer from steathorrea and PERT was described incorrectly in 9/15 (60%) of these patients. Therefore it is recommended to prescribe PERT based on individual fecal fat excretion measurements, rather than based on clinical symptoms or as a standard procedure.

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