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*Own observations on the use of Espoticon
to eliminate gases from the pancreatic area
during ultrasound examinations*

Własne obserwacje w stosowaniu Esputiconu w celu eliminacji gazów z pola trzustkowego podczas badań USG

The pancreas belongs to organs difficult to palpate and to assess by means of standard X-ray examinations. The breakthrough occurred only with the appearance of ultrasonography whose value has become commonly appreciated (2, 8, 9). However, in many patients an excessive amount of intestinal gases, obesity, residual fluid in the stomach, especially in the limited space associated with gas still considerably binder the assessment of the pancreas (2, 15). The aim of the paper is thus presentation of own experiences concerned with the improvement of visualisation of ultrasound imaging of the pancreas, especially by using Espoticon (Dime-thicon).

MATERIAL AND METHODS

The material comprises a group of 38 patients aged 26–87 years (15 women and 23 men) in whom the assessment of the pancreas was hindered by an excessive amount of intestinal gas resulting from different causes.

There was recommended refraining from eating for 6–8 hours. The increased tension of abdominal coats was obtained by respiratory manoeuvres, changes of body position, filling the stomach with water and primarily, the use of preparation with Esputicon.

Esputicon was administered three times daily, 2 capsules (50) for 3 days before examination, on the day of exam 2 capsules on fasting.

RESULTS

Refraining from food ingestion for 6–8 hours, except for water was advantageous in 2 patients only.

In 7 patients tension of abdominal coats combined with expiration of the air was effective. These respiratory manoeuvres caused displacement of intestinal loops obturating the pancreatic area. They were also advantageous in the case of lack of peristalsis of loops filled with fluid.

In 5 patients filling the stomach with water was used which the patient drank through straw in the amount of 1–1.5 l. This allowed to avoid swallowing the air. The stomach filled with fluid played the role of an acoustic window. Examination was then performed in the half-sitting or standing position.

In 2 patients gastric residual fluid imitated a pseudo-cyst of the pancreas. After additional filling with water the number of false positive diagnoses of pseudo-cysts got reduced. In the examined patients water was combined with anti-foam agents, which gave good effects in 2 cases. In 2 patients filling of pylorus with fluid revealed outlines of pancreatic tail. It should be emphasised that examinations with the use of water took quite a lot of time.

For the examinations of the head of the pancreas patients were made to lie down in the right lateral deflexion position. In 3 cases this let differentiate the duodenum from the head of the pancreas.

After administering Esputicon good results were obtained in clearing the intestinal lumen from the excess of gases in 14 patients (Fig. 1a–b). In 11 cases full outlines of the pancreas were revealed covered during the previous examination. In 3 cases visualisation was only partial, but sufficient for the recognition. In 8 patients head of the pancreas was revealed, in 3 cases cysts within the pancreatic tail (Fig. 2a–b). In 17 subjects Esputicon eliminated intestinal gases leaving only small amount of them. In 2 patients no significant improvement of pancreas visualisation was obtained. In 2 cases of jaundice an enlargement of previously covered head of the pancreas was shown (Fig. 3). Enlargement of the pancreas was diffuse in 9 cases, 5 times it was focal and associated with diminished echogenicity of the parenchyma. In 6 patients deformation of contours was revealed.

DISCUSSION

Small thickness of the pancreas, retro-peritoneal position and overlapping of neighbouring intestinal loops make the assessment of the organ difficult. Visibility of the tail of the pancreas and of dorsally adjacent splenic vein depends on the amount of intestinal gases. They are the commonest reason of technically unsatisfactory ultrasound sections.

Duodenum filled with gases gives bright echoes with acoustic shadows hindering the separation of the head of the pancreas. Duodenum filled with fluid can be more distinctly separated.

The head and body of the pancreas can be shown in about 81% cases. In 5–15% cases the pancreas and especially its tail are covered by intestinal loops filled with gas (8). Complete cleaning of the colon is not obtained, especially in elderly people. In diet 1–2 days before examination the amount of faeces has decreased though most subjects suffer from constipation.

There was examined the effect of dimethicon, dimethicon-pancreatin and lysin-vasopressin on the improvement of pancreas imaging. A highly significant positive effect was observed in the case of lysin-vasopressin, significant with dimethicon-pancreatin (11). Dimethicon did not improve USG visualisation of the pancreas and kidneys (5, 11).

The effect of preparing patients with dimethylpolysiloxane on the quality of USG examinations was similarly investigated (4). Dimethicon combined with various Galen preparations (Paractol, Sab) was tested for their usefulness in preparing patients for USG exams. An improvement of visualisation quality of vessels and epigastrum was found. The best effects were obtained using Paractol, which resulted from a high dose of dimethicon in this preparation (3).

Ceolat in tablets reduced the amount of intestinal gases and improved the quality of ultrasound pictures, CT as well as rentgenograms of the abdomen (10). Combining of clebopride (0.5 mg) with simethicon (200mg) improved echographic imaging of the pancreas and left kidney (6).

Clebopride and simethicon in the form of Flatorix preparation can be solution of the problem of USG imaging of the pancreatic field. Statistically significant improvement was demonstrated within the head and body of the pancreas (76% cases).

Pancreas imaging was also examined using simethicon in Lafax preparation. An improvement of visualisation was found especially in obese persons, over the period of 30–45 minutes, parallel with reduction of overlapping intestinal gases (13). In visualising the pancreatic field the effect of Enzym-Paractol was investigated showing improvement in about 15% cases (3).

After the administration of Esputicon the removal of reduction of intestinal gas in preparing patients for angiographic abdominal examinations was obtained in 95% patients. Esputicon contains dimethicon activated with silicon dioxide. Dimethicons, macromolecular organic silicon compounds with viscosity 200–300 cSt after activation with the additive of silicone gel are used orally.

Dimethicon is a compound with small surface tension and changes surface tension of gas bubbles. It breaks up bigger gas bubbles into smaller ones facilitating their absorption and evacuation from intestines. Given adorally it alleviates flatulence, reduces tension of the stomach distended by gases, removes gas, air bubbles and foam from the alimentary canal. When used in conditions of excessive gas accumulation it decreases the feeling of fullness, meteorism resulting from nutritional disturbances or limitation of movement, meteopathy and dyspepsia. Dimethicon is especially recommended after operations of the abdominal cavity. As a biologically active substance it does not penetrate into the bloodstream and is excreted unchanged. Its property is elimination of gases, foam and air from the digestive tract before USG, urography and endoscopy. Accumulated intestinal gases cause increased peristalsis, decrease of contrast and legibility of structures.

Harmlessness of dimethicon lets administer it to infants and children. The absence of side-effects results from no absorption in the digestive tract. Very rarely constipation can occur. The Western equivalent of Esputicon is Espumisan (Berlin-Chemie AG). It does not get absorbed and its action is exclusively local as of superficially active polydimethylsiloxamen.

Osmotic sucking load forms a mixture of magnesium citrate and sodium phosphate. It irritates intestinal mucosa and causes increased peristalsis (caster oil and bisacodyl). There is suggested a combination of 240ml water (full glass), 300ml magnesium citrate at 4 a.m. and 60ml caster oil at 8 a.m. (12). In England popularity is enjoyed by magnesium citrate and sodium picosulphate.

Intravenous administration of metoclopramide stimulated gastric and duodenal peristalsis before USG examination (1). It improved pancreas visualisation in 44% examined subjects (1).

However, even the strictest preparatory technique can fail to visualise the whole of the pancreas in about 10% cases (12). Our observations suggest that in these persons CT examination should be performed.

Limited fluid containers in the stomach and intestines form erroneous diagnosis of pseudo-cysts. With lack of peristalsis a filled intestine can be a source of diagnostic mistakes.

Most intestinal gases come from inspired air. We observe fluid levels similar to those in obstruction. Renal colic causes increased air swallowing forming intestinal distension. Fluid level in the caecum is found in 18% subjects without the symptoms of obstruction (2).

Filling of the duodenum with gas is optimal in the left, lateral deflexional position, recommended in pancreas pathology. The assessment of the presence of gas ought to be performed also in the position on the stomach and on the back.

Gas can form a confined pocket, comprise a part of the pancreas, penetrate into the omental, retro-peritoneal bursa or into the peritoneal cavity. In 50% cases of acute pancreatitis intra- or extra-pancreatic fluid reservoirs can have the character of pseudo-cysts (2).

CONCLUSIONS

1. The use of Esputicon gave good results in 73.7% cases, satisfactory ones in 15.8% while in 10.5% no improvement of pancreas visualisation was obtained.
2. Changes of surface tension of abdominal coats combined with respiratory and positional manoeuvres, by displacing intestinal loops, in considerable percentage of cases cleared the pancreatic area.

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STRESZCZENIE

W badaniu USG trzustki przesłoniętej przez nadmierną ilość gazów jelitowych stosowano różnorodne techniki. Obok manewrów pozycyjnych, oddechowych, wypełnienia wodą żołądka, szczególną uwagę poświęcono preparatowi Esputicon. Dawał on w 14 badanych przypadkach (73,7%) dobre rezultaty; w 3 przypadkach (15,8%) wystarczające do oceny trzustki; jedynie u 2 badanych (10,5%) nie uzyskano poprawy widoczności trzustki. Trzydniowe przygotowanie Esputiconem eliminowało gazy jelitowe łącznie u 87,5% badanych.



Fig. 1a – before ...



Fig. 1b – after preparing with Esputicon
the pancreas becomes visible



Fig. 2a – before ...



Fig. 2b – after preparing with Esputicon a cyst
in the tail of pancreas gets visualised



Fig. 3 – tumour of the head of pancreas, cholestasis

