

ILEUS STATES – CONDITIONS CONNECTING PSYCHIATRISTS AND SURGEONS?

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Background. Ileus states are serious conditions that may lead to pathophysiological changes which in turn can result in perforation of bowel, peritonitis, sepsis or death. Our paper discusses paralytic ileus states, which can be caused by psychopharmaceutics with anticholinergic side effects.

Methods and Results. Retrospective analysis of cases of paralytic ileus in mentally ill patients admitted to Mental Hospital Kromeriz.

Conclusion. Although some old psychopharmacs have a much higher potential for anticholinergic side effects than the new ones, there are still some of the new modern antipsychotics which also have anticholinergic side effects which could cause paralytic ileus. Both psychiatrists and surgeons should pay attention to atypical or changed signs of ileus states in mentally ill patients and should be aware of the confounding factors which could make the diagnosis of ileus difficult in mentally ill patients.

INTRODUCTION

Ileus states form an important group of conditions that rank amongst causes of acute abdominal pain. The term Ileus means that the passage of stool through the bowels is stopped. Ileus is a serious pathology that can occur at any time from childhood, with increasing prevalence in older patients. Ileus represents about 20% of cases of acute abdominal pain. Ileus states can be classified according to many factors: (A) acuteness and chronology of its development, (B) completeness of blockage, (C) fac-

tors causing ileus states, (D) localization of blockage in passage of stool¹⁻³ (Table 1).

Ileus states can be characterised by a quick development of changes in the body^{1,4,5}. In the case of mechanical ileus, there can be seen a distension of bowel above its blockage. This distension is as a result of the congestion of fluid and bowel gas above the point of bowel blockage. Fluid collected in distended bowel means potentially significant leakage of water and minerals out of blood vessels. This is routinely termed leakage into the “third space”. Hence, this redistribution of **intravascular water**

Table 1. Classification of ileus states.

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| (A) Acuteness and chronology of its development |
| – acute / subacute / chronic / recidiving ileus |
| (B) Completeness of blockage |
| – complete ileus / incomplete ileus |
| (C) Factors causing ileus states |
| – mechanic ileus – 1. obstructive : – intraluminal (invagination of bowel wall, corpora aliena, biliar stones) |
| – intramural (tumors, inflammatory, postoperative or posttraumatic stenosis) |
| – extramural (tumours, fibrotic cords, hernia incarcerata) |
| – 2. volvulus – caused by rotation and strangulation of bowel wall |
| – neurogenous ileus (paralytic and spastic) |
| – vascular ileus (caused by thrombosis or embolia in a vessel of the bowel wall) |
| (D) Localization of blockage in passage of stool |
| – high ileus of thin bowel |
| – low ileus of thin bowel |
| – ileus of large bowel |

and minerals can lead to hypovolemia, hemoconcentration and other pathophysiological consequences (such as renal insufficiency, or hypovolemic shock with consequent hypoperfusion of organs). Changes in acidobasic equilibrium, changes of bowel motility, respiratory disturbances, cardiovascular consequences can follow as well. In addition, the rupture of overdistended bowel and peritonitis or sepsis can be fatal complications of ileus^{2-3,6-8}.

Typical clinical signs of ileus states

Clinical signs of ileus states can change dynamically in time – as they may also change in the case of all other causes of acute abdominal pain^{2,3}.

(1) **Abdominal pain** can be a leading symptom of ileus. There may be constant abdominal pain localized first above the blocked part of bowel. This pain can spread to become diffuse abdominal pain (signifying the rupture of bowel and peritonitis).

(2) **Nausea and vomitus**, which can be caused either by reflexive or compensatory mechanism.

(3) **Blockage of passage** of stool and gas per vias naturales – no stool and gas passes through the bowel (exceptionally there can be “false” passage of stool and gas in case of high ileus, when the bowel is intact and can transport stool and gas). Physical examination of the abdomen is an indispensable part of diagnosing ileus (inspection, palpation, percussion, auscultation of all the abdominal surface, including per rectum examination) as well as laboratory check (RBC, WBC, minerals, osmolality, glycaemia, urea, creatinin, liver enzymes markers, urine check), horizontal roentgen scan of the abdomen (with detection of typical hydroaeric phenomena), ultrasonography of abdomen (can be helpful in detection of blockage in the bowel, distension of bowel above the blockage, fluid in abdomen) or computerized tomography of the abdomen¹⁻³ (Table 2).

Table 2. Typical clinical signs of ileus states.

Abdominal pain
Nausea and vomiting
Blockage of passage of stool and gas per vias naturales

Prevalence of ileus states is higher in patients taking some sorts of psychopharmaceuticals compared to general population

The prevalence of ileus states appears to be higher in patients taking some sorts of psychopharmacs, in comparison to the general population. All psychopharmacs with anticholinergic side effects can lead to changes in mobility of bowel and result in paralytic ileus⁹. Paralytic ileus associated with anticholinergic side effects of some older antidepressants (such as amitriptyline, clomipramine, imipramine), first generation antipsychotics (such as chlorpromazine, thioridazine, flupenthixol) and hypothetically in some cases of mood stabilizers, has been described^{10-14,15-20}.

After treatment with antipsychotics, histological changes in structure of intestine were described in animal models. These changes are suggestive of inflammation, oedema and hemorrhage²¹.

Generally, the era of new modern psychopharmacs brought less side effects for patients treated by the new generation of antidepressants or antipsychotics, resulting in better adherence and better quality of life of mentally ill patients. On the other hand, some of the side effects remained due to the receptors involved and pharmacodynamics of the new psychotropic drugs. Even in case of recent generations of antidepressants or antipsychotics of the second generation we should be aware of the potential anticholinergic side effects, leading clinically to dysuria, retention of urine, visual disturbances (changes in accommodation, dryness of sclera), confusional states, gynaecological conditions (dryness of vaginal and other mucous membranes) or paralytic ileus^{4,9} (Table 3).

Uncertainty about clinical signs in cases of patients with psychiatric morbidity

This atypical clinical picture can be typically found. This should encourage all clinicians to be aware (especially in cases of absence of typical clinical signs of ileus states) of therapy or other pathological conditions which may change these typical diagnostic signs.

Patients suffering from mental disorders provide an example of a situation in which typical clinical signs can be masked, altered or absent. Psychopharmacs may change or lower the threshold of perceiving pain, which may lead

Table 3. Psychopharmacs that may cause anticholinergic side effects leading to paralytic Ileus.

(A) Antidepressants	– tricyclic antidepressants (such as amitriptyline, clomipramine, imipramine...)
	– heterocyclic antidepressants (such as trazodone, nefazodone)
	– selective serotonin reuptake inhibitors (rarely, fluoxetine could be mentioned here)
	– dualistic antidepressants (mirtazapine has some anticholinergic effects)
(B) Antipsychotics	– first generation of antipsychotics (FGA) (such as chlorpromazine, thioridazine, flupenthixol, haloperidol and many others)
	– second generation of antipsychotics (SGA) (such as clozapine or olanzapine)
(C) Mood stabilizers	– lithium ¹⁹ , carbamazepine ²⁰ (in toxic dosage?)

to loss of sensitivity towards pain or altered perception of pain. Patients with mental disorder (especially those with a lifelong course and having a defect in intellect) may ignore symptoms of pain or assume they are part of the condition. Furthermore, sometimes there is a risk of misinterpreting one can interpret abdominal pain as a symptom of basic mental disease (especially in case of paranoid states, somatoform states, hypochondriac states, personality disorders with associated hypersensitivity, factitious disorder or simulation)^{10,12}.

Both psychiatrists and surgeons should take into account other factors as mentioned above in mentally ill people which sometimes make diagnosis and differential diagnosis of ileus states extremely difficult (Table 4).

Table 4. What can make diagnosis of ileus states difficult in mentally ill patients.

Changed or lowered threshold of perceiving the pain
Misinterpretation of pain by a patient
Neglect of pain by a patient
Misinterpretation of patient's pain by a doctor

METHODS

Three case reports demonstrating the development of paralytic ileus in mentally ill patients hospitalized in Mental Hospital Kromeriz (retrospective analysis from March 2009 to March 2010) are here presented.

Case 1

47 years old female pensioner, 12th hospitalization in Mental hospital in Kromeriz. Treated for paranoid schizophrenia since 1982 with long term course and experiencing residual symptoms (paranoia and cognitive impairment). Psychopharmacological history: chlorpromazine, thioridazine, diazepam, amitriptyline. Actual pharmacotherapy: levomepromazine 200 mg daily, clozapine 400 mg daily (dosage increased gradually during this hospitalization from 300 mg daily), clonazepam 1.5 mg daily.

On the 15th day of hospitalization, she develops anorexia with abdominal distension and constipation. Conservative treatment of constipation fails, on the 16th day of hospitalization patient suffers from diffuse abdominal pain with rapid progression to paralytic ileus. Surgical revision including laparotomy was vital, with findings of low ileus of thin bowel.

Case 2

56 years old, male pensioner, 8th hospitalization in Mental hospital in Kromeriz. Treated for residual schizophrenia and hypertension. First symptoms appeared in 1978. Admitted to hospital because of relapse of imperative auditory hallucinations. Psychopharmacological history: chlorpromazine, chlorprothixene, thioridazine, lithium, valproate, benzodiazepines. Actual pharma-

cotherapy: antihypertensives (betaxolol 10 mg daily – betablocker), clozapine 500 mg daily, flufenazine in depot galenic form (25 mg each 3 weeks). Dosage of any psychopharmacs used in actual therapy has not been changed.

29th day of hospitalization patient complains of nausea, vomiting, atypical sensation localized in lower abdomen. Auscultation of abdomen shows no signs of bowel peristalsis. X – ray scan of abdomen by horizontal X-ray show dilatation of caecum and hydroaeric phenomena with caecal localization. Surgical intervention including laparotomy and revision of abdomen was required.

Case 3

55 years old, female pensioner, 7th hospitalization in Mental hospital in Kromeriz. Treated for schizoaffective disorder, depressive type. First symptoms appeared in 1987. Admitted to hospital because of relapse of depressive symptoms – anhedonia, abulia, aprosexia, suicidal intentions. Psychopharmacological history: levomepromazine, chlorprothixene, olanzapine, amitriptyline, dosulepine, citalopram, venlafaxine. Actual pharmacotherapy: levomepromazine 100 mg daily (dosage was decreased gradually during this hospitalization from initial 200 mg daily), olanzapine 10 mg daily (no change in dosage during this hospitalization), venlafaxine 150 mg daily (introduced into therapy during this hospitalization).

25th day of hospitalization nausea and constipation appear together with umbilical abdominal pain, surgical liaison service was required and made a diagnosis of low ileus in bowel. Patient was treated conservatively – conservative treatment included parasympatholytics, rehydration, dietary provision and watchful observation. Regression of paralytic ileus was observed then, with no need of surgical revision.

CONCLUSION

We bring three case reports of patients treated for paranoid schizophrenia, residual schizophrenia and schizoaffective disorder-depressive type. Their actual medications (including mostly antipsychotics of first generation) could have anticholinergic side effects, clinically leading to development of ileus states requiring consultation and therapy by surgeon. Polypragmasis was evident in all cases, this can be an important confounding factor.

Many patients suffering from mental disorders (especially with long term course of mental disease) are still treated with older generations of psychopharmacs which were used for treating them in former hospitalizations. Psychiatrists do not usually discontinue this medication especially if basic psychopathology is under control. We would like to provoke further clinically important questions: Should we change therapy with preference for new generation psychopharmacs in patients with chronic mental illness (especially if they are stabilized for their psychopathology with older forms of psychopharmacological medication)? Should we undergo this if at risk of relapse

of mental disease? Or should we try to change therapy of our patients for more comfortable options, with less side effects including anticholinergic side effects and the perspective of better adherence?

Any psychiatrist should be aware of pharmacodynamics of psychopharmacs which have been prescribed, including having a good knowledge of side effects of this medication. Anticholinergic side effects are one of the most important side effects, usually detected in older types of psychopharmacs which are still prescribed.

Both the knowledge of clinical symptoms of ileus states as well as its early detection and interdisciplinary collaboration with surgeons, can be vital in the care of mentally ill patients who develop ileus due to their therapy.

REFERENCES

- Ševčík P, Černý V, Vitovec J. Intenzivní medicína. 2. vydání. [Intensive Care]. (In Czech). Praha: Galén; 2003. p. 147–148. ISBN 80-7262-203-X.
- Zeman M, et al. Speciální chirurgie. 2. vydání. [Special Surgery, 2nd edition]. (in Czech). Praha: Galén, 2004. p. ISBN 80-7262-260-9.
- Třeška V. et al. Propedeutika vybraných klinických oborů. [Propedeutics of Chosen Clinical Specializations]. (in Czech). Praha: Grada, 2003. pp. 135–138. ISBN 80-247-0239-8.
- Simon Ch, Everitt H, Kendrick T. Oxford Handbook of General Practice. Second edition. Oxford University Press, 2005. p. 1066–1067.
- Semple D, Smyth R, Burns J. et al. Oxford Handbook of Psychiatry. Oxford University Press, 2005. p. 210–223.
- Nadrowski L. Paralytic ileus: recent advances in pathophysiology and treatment. *Curr Surg* 1983, 40(4):260–73.
- Eckert P. Pathophysiology and morbidity of paralytic ileus (including peritonitis). [Article in German]. *Langenbecks Arch Chir* 1985; 366:285–9.
- Schröder H, Möller H. Paralytic ileus – pathophysiology and clinical aspects. [Article in German]. *Zentralbl Chir* 1987; 112(11):681–90.
- Raboch J, Jiráček R, Paclt I. Psychofarmakologie pro praxi. 2. vydání. [Psychopharmacology for practice, 2nd edition]. (In Czech). Praha: Triton, 2007. p. 79
- Palmer SE, et al. Life-threatening clozapine-induced gastrointestinal hypomotility: an analysis of 102 cases. *J Clin Psychiatry* 2008; 69(5):759–68.
- Rondla S, Crane S. A case of clozapine-induced paralytic ileus. *Emerg Med J* 2007;24(2):e12.
- Giordano J, Canter JW, Huang A. Fatal paralytic ileus complicating phenothiazine therapy. *South Med J* 1975;68(3):351–3.
- Gaszner G, Kosza P. Paralytic ileus during haloperidol therapy. [Article in Hungarian]. *Neuropsychopharmacol Hung* 2004; 6(1):36–8.
- Dome P, Teleki Z, Kotanyi R. Paralytic ileus associated with combined atypical antipsychotic therapy. *Prog Neuropsychopharmacol Biol Psychiatry* 2007 30;31(2):557–60.
- Sriram K, et al. Phenothiazine effect on gastrointestinal tract function. *Am J Surg* 1979;137(1):87–91.
- Sood A, Kumar R. Imipramine induced acute colonic pseudo-obstruction (Ogilvie's syndrome): a report of two cases. *Indian J Gastroenterol* 1996; 15(2):70–1.
- Hayes JR, Bojrab SL, McCarthy MC. Gastrointestinal effects of tricyclic antidepressants: Ogilvie's syndrome. *Psychosomatics* 1987; 28(8):442–3.
- McMahon AJ. Amitriptyline overdose complicated by intestinal pseudo-obstruction and caecal perforation. *Postgrad Med J* 1989; 65(770):948–9.
- Fava S, Galizia AC. Neuroleptic malignant syndrome and lithium carbonate. *J Psychiatry Neurosci* 1995; 20(4):305–6.
- Baisher W, et al. Carbamazepine poisoning: protracted course with development of intestinal atony and hepatic toxicity. [Article in German]. *Wien Klin Wochenschr* 1994; 106(1):27–9.
- Szanto P, et al. Histologic changes in the guinea pig gastrointestinal tract following 1 weeks' administration of chlorpromazine, haloperidol or atropine. *Psychopharmacology (Berl)* 1988; 95(3):351–5.