Pancreatitis bundles

Toshihiko Mayumi · Tadahiro Takada · Koichi Hirata · Masahiro Yoshida · Miho Sekimoto · Masahiko Hirota · Yasutoshi Kimura · Kazunori Takeda · Hodaka Amano · Keita Wada · Toshifumi Gabata · Shinju Arata · Morihisa Hirota · Masamichi Yokoe · Seiki Kiriyama · Satoru Shikata · Kunihiro Shirai · Takeo Nakayama · Kuni Ohtomo · Masao Tanaka · Tooru Shimosegawa

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Abstract Clinical indicators set forth in the guidelines have been found to contribute to the improvement in compliance with the guidelines. On the other hand, it has been shown that clinical indicators are more effective when individual indicators are presented in the form of a bundle than when they are given separately. Accordingly, in the JPN Guidelines 2010 for management of acute pancreatitis, those indicators that are judged to be important on the basis of a recommendation classification of “A or B” are presented as a pancreatitis bundle. Each item includes assessment of severity after a diagnosis of pancreatitis has been made, differentiation of pathogenesis, management of gallstone-induced pancreatitis, a sufficient dose of fluid replacement and monitoring, pain control, prophylactic administration of wide-spectrum antibiotics and cholecystectomy following resolution of pancreatic symptoms caused by cholecystolithiasis. Hereafter, the efficacy of these indicators and the significance of their achievement should be examined carefully. Then, the assessment of the
compliance rate with the guidelines as well as the assessment of the guidelines and pancreatitis itself should become possible.

**Keywords** Pancreatitis bundle · Pancreatitis · Guidelines · Clinical indicators

**What are clinical indicators and bundles?**

To begin with, the guidelines are made so that they are publicized widely, used in many medical situations and eventually contribute to the improvement in the prognosis of patients. The purpose never lies in just making the guidelines themselves. To achieve that purpose, efforts are made on the basis of evidence to prepare guidelines of high quality that can be used in clinical situations. At the same time, a variety of new ideas are adopted so that they are publicized, known and used widely. These ideas include; (1) Description presented in the form of clinical questions encountered in clinical situations, (2) Flow charts and algorithms attached to each guideline, (3) Brochures and handouts prepared and distributed that are portable and able to be always carried, (4) Easy access to the homepage any time. One of them is a clinical indicator. It has been found that once indicators have been implemented in the guidelines, the compliance rate with the guidelines increases. Also, in the assessment of items, groups such as the AGREE Collaboration (Appraisal of guidelines for research & evaluation) used for appraising the guidelines, there is an item that confirms if clinical indicators have been implemented or not [1].

**Efficacy of the bundle**

It is thought that when relevant and desirable care related to each other as a bundle, such as sepsis bundle [2–4], ventilator bundle [5, 6] or central line bundle [7] has been delivered, the improvement in the prognosis of patients is more remarkable than when individual intervention has been delivered separately. Good prognosis is also reported in cases in which a bundle has been achieved, but this may show that those cases which have achieved a bundle are in such good condition as to enable achievement of a bundle. However, the improvement in the prognosis in patients achieved through education concerning bundles demonstrates that implementation of bundles and education concerning them have been useful [4, 8].

**Controversial points and harmful effects of bundles**

There are many problems to be solved for dissemination and implementation of bundles. One of them involves the diffusion of and thorough compliance with bundles. As in the case of the guidelines, even if useful items have been implemented, the prognosis in patients is not improved without the common knowledge of bundles among providers of medical care [8]. Furthermore, it is not possible to put bundles into practice without sufficient manpower and equipment [9].

Manpower and equipment should be improved, if possible. If improvement is impossible, an alternative treatment should be provided or patients should be transferred to a medical facility where the contents of bundles can be put into practice. So that bundles may be disseminated, a big campaign such as a “surviving sepsis campaign” should be started up and made known widely through homepages and journals. It is also possible to distribute handouts or memoranda that are portable any time and in which items of bundles are described. It will also be useful to request checking of the contents of sepsis bundles and to urge the implementation of bundles on the occasion of case registry such as a “sepsis registry”. Case registry and education are also important to encourage compliance with bundles.

There is also a concern that bundles are used not for the purpose of improving the prognosis in patients and increasing efficiency, but for limiting the contents of medical care to keep health care costs down. Furthermore, failure to carry out the contents of bundles should not lead to lawsuit.

**Pancreatitis bundles**

So that the compliance rate with the guidelines may be increased and that patient prognosis may be improved, the present guidelines have implemented the following clinical indications (pancreatitis bundle). The content of every bundle is classified into Recommendation “A or B” and
they can be altered to some extent so that the contents may be adjusted to the conditions of the individual institutions, but all the items listed below should be included. Except in special situations, it is desirable that all the items are carried out and recorded in medical records.

The efficacy and significance of achieving these items should be eventually validated, but assessment of the compliance rate with the guidelines as well as with the pancreatitis bundles themselves becomes possible through pancreatitis bundles.

Items of pancreatitis bundles are described in Table 1.

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**Table 1 Pancreatitis bundles**

1. When a diagnosis of acute pancreatitis has been made, repeated severity assessment should be carried out within 24 h, and 24–48 h after diagnosis on the basis of estimating the severity assessment criteria of acute pancreatitis prepared by the Ministry of Health, Labour and Welfare.
2. For patients with severe acute pancreatitis, transference to an appropriate medical facility should be considered within 3 h after a diagnosis has been made.
3. For patients with acute pancreatitis, causes of pancreatitis should be differentiated using medical records, hematological examination and imaging studies.
4. For gallstone-induced pancreatitis, early ERC + ES should be considered in those patients in whom cholangitis is accompanied and/or prolonged passage disorder of the biliary tract including occurrence or aggravation of jaundice are suspected.
5. At a medical facility where treatment for severe acute pancreatitis is performed, abdominal enhanced CT studies should be performed within 3 h after initial treatment. An unenhanced area and the extent of the disease should be examined and the severity should be assessed on the basis of the CT grade of acute pancreatitis by the Ministry of Health, Labour and Welfare.
6. For acute pancreatitis, sufficient amount of fluid replacement and monitoring should be performed, and mean arterial pressure (MAP) should be maintained >65 mmHg and urinary output >0.5 ml/kg/h, respectively.
7. Pain control should be conducted for acute pancreatitis.
8. Prophylactic wide-spectrum antibiotics should be administered for severe acute pancreatitis within 24 h after onset.
9. In the case of severe acute pancreatitis, doctors should inscribe an application form for public payment should be given to the proxy of the patient as soon as possible (within 2 days) after a diagnosis of acute pancreatitis has been made.
10. Cholecystectomy should be performed after resolution of symptoms of pancreatitis for gallstone-induced pancreatitis accompanied by cholecystolithiasis.

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**References**


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\[^{a}\text{Mean arterial pressure (MAP) = }\text{diastolic pressure + (systolic pressure – diastolic pressure)/3}\]