Early assessment of the patient with acute pancreatitis leading to an accurate prediction of severe outcome is useful for two reasons. First, and better established, is the need to categorise groups of patients to allow comparison of published series, and to generate groups at risk of complications for clinical trials. Second, and only recently relevant, is the need to identify patients who are individually at risk of complications so that effective preventive management can be started before those complications develop.

A severe attack of pancreatitis is defined as one in which a complication has occurred (1). Complications may be systemic, that is failure of an organ or system distant from the pancreas, or local, which are probably all secondary to necrosis of pancreatic or peripancreatic tissues. Pancreatic necrosis is usually accompanied by at least one organ failure, often respiratory. Care must be taken to distinguish between features which diagnose severity, such as hypoxaemia or CT evidence of necrosis, and truly predictive markers of severity which precede objective evidence of complications.

The features which predict a severe outcome can be categorised as clinical, related to pancreatic enzyme activation, or inflammatory. In addition, there are disturbances of physiological and biochemical processes which can be demonstrated by simple clinical and laboratory measurement. These are often combined into multiple factor scoring systems.

**Clinical Features**

It is well established that subjective clinical assessment is inaccurate in predicting severity at the time of admission to hospital (2,3). This is because at that early stage in the disease, incipient organ failure is difficult to recognise clinically. Early clinical assessment is reasonably specific but has a very poor sensitivity. By 48 hours after admission, the sensitivity improves, and matches that achieved by multiple factor scoring systems. However, the accuracy of clinical assessment depends entirely on the experience and judgement of the clinical team, and it is difficult to standardise. A number of specific clinical features are associated with a severe outcome. Subcutaneous fat necrosis and body wall bruising are both individually associated with severe outcome. Subcutaneous fat necrosis is extremely rare and is thus of limited clinical usefulness. Body wall bruising is also
uncommon, but is strongly predictive of poor outcome with a high risk of death in these patients (4). However, its appearance is often delayed by 2–4 days after onset of symptoms. This combined with its infrequent occurrence makes it of limited clinical usefulness.

**Obesity**

Several studies have demonstrated that obesity is strongly associated with the development of complications. Lankisch and Schirren (5) have demonstrated that patients with complications had a greater mean body mass index (BMI; kg/m²) than those who did not. Subsequently, others (6,7) showed that BMI > 30 was associated with an increased risk of complications, and death (7). We have confirmed these observations, and in a series of 186 patients we were able to demonstrate that even minor elevation of BMI (26–30) increases the risk of complications (Figure 1).

**Radiological Markers**

Appearances of the plain abdominal radiograph in acute pancreatitis are non-specific and do not help to predict outcome. The chest radiograph may show pulmonary infiltrates or basal pleural effusions, and both these signs have been associated with a severe outcome (8,9). The assessment of pulmonary infiltrates is potentially subjective, and pleural effusion is probably a more reliable marker. Left-sided or bilateral effusions on chest radiograph within 24 hours of admission were associated with a 76% and 88% risk of complications, and a 14% and a 42% risk of death, respectively (8).

![Figure 1](image)