increase in abdominal girth is reported more commonly in IBS and constipated patients, whereas only half of those who report bloating have distension beyond the normal range. In addition to bloating, incomplete evacuation, straining or urgency, and the presence of increased passage of gas and burping are often reported by IBS patients but are not specific enough to be included in the criteria. Reports from the Manning criteria have revealed that individual symptoms lack both sensitivity and specificity. However, combinations of individual symptoms yield more robust sensitivity and specificity, providing the rationale behind combining these symptoms together and classifying symptoms into syndromes as in Rome III criteria.

### The Red Flags

These are the clinical signs and symptoms that need careful consideration before the diagnosis of IBS can be made (Table 6-2). These symptoms and signs are meant to improve the accuracy for discriminating patients with a higher likelihood of having structural disease from patients with a low probability of such disease, compared to symptom criteria alone. In a study by Vanner and colleagues, when patients with red flags (36% of otherwise eligible patients) were excluded from the analysis, the specificity of the Rome I criteria was 100% while the sensitivity was 65%. In summarizing the studies that have used this combined strategy, the meta-analysis by Jellema and colleagues showed a median specificity of 0.92 and sensitivity of 0.67, and the meta-analysis by Ford and colleagues showed a median specificity of 0.87 and sensitivity of 0.84. Most red flag symptoms greatly overestimate the likelihood of organic disease. Whitehead and colleagues found that 84% of patients whom clinicians (80% primary care, 20% gastroenterology clinics) ultimately diagnosed as having IBS reported one or more red flags. Additional studies are needed that examine the sensitivity of individual red flags, alone and in combination, for predicting organic disease.

### Presence of Red Flags

If one or more alarm features are present, further investigations are required. Work-up can start with blood tests including complete blood count (CBC), inflammatory

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**Table 6-2**

**Red Flags before Considering Diagnosis of IBS**

- Involuntary weight loss
- Nocturnal symptoms
- Family history of colon cancer
- Blood mixed with stools
- Recent antibiotic use
- Symptom onset when patient is older than 50 years