

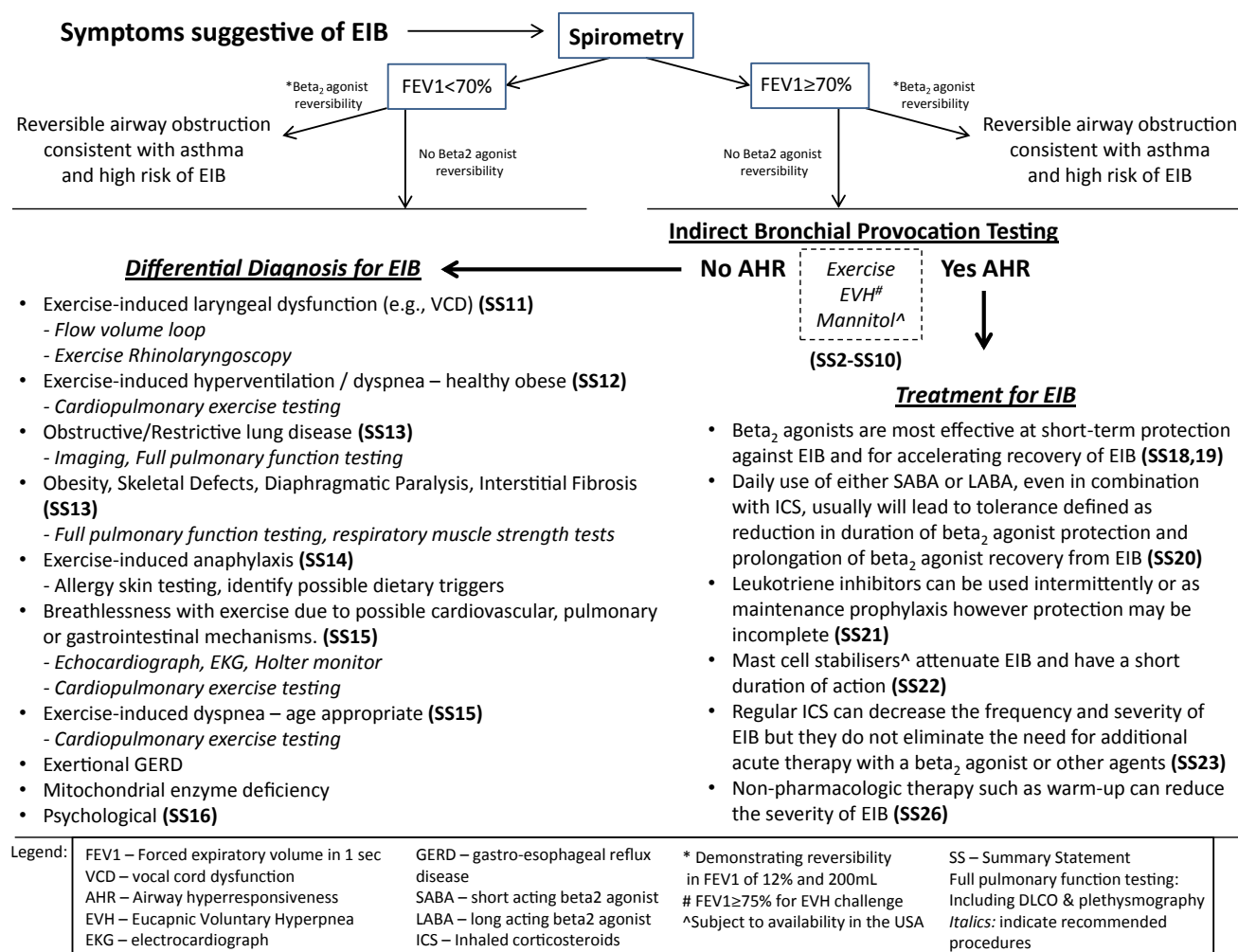


FIG 1. Algorithm for the diagnosis, treatment, and differential diagnosis of EIB.

a vulnerable subject is either the loss of water during periods of high ventilation or the addition of an osmotically active agent. Alterations in airway temperature develop during exercise, but thermal factors are thought to have only a minor effect on the amount of bronchoconstriction that occurs.

Exercise itself is not needed to cause bronchoconstriction, just the creation of a hyperosmolar environment. Diagnosis of EIB is made by using exercise or hyperosmolar surrogate challenges, such as EVH or mannitol. If pulmonary function test (PFT) results are normal, then exercise challenge or surrogate hyperosmolar challenge, such as with mannitol or EVH, should be performed.

Management of EIB is based on the understanding that EIB susceptibility varies widely among asthmatic patients, as well as those who do not have other features of asthma. Therefore EIB can occur in the presence or absence of asthma. Vulnerable subjects have characteristics of both airway inflammation with infiltration of the airways by mast cells and eosinophils and airway smooth muscle with hyperresponsiveness. These observations indicate that treatment should be based on the awareness that exercise causes release of mediators, including predominantly leukotrienes but also tryptase, prostaglandins, and histamine, to act on smooth muscle, leading to bronchoconstriction after exercise.

Therefore therapeutic interventions include short-acting β_2 -agonists to provide bronchodilation and bronchoprotection. Additionally, anti-inflammatory medications, including inhaled steroids and leukotriene receptor antagonists (LTRAs) or combination therapy (with inhaled corticosteroids and long-acting β_2 -agonists [LABAs]), are recommended for inflammation. Combination therapy that includes a LABA should not be used in persons with normal or near-normal baseline lung function (ie, FEV₁ >80% of predicted value) because regular use of short-acting β_2 -agonists and LABAs can cause tolerance, limiting their ability to provide bronchoprotection and bronchodilation.

Use of face masks might promote humidification and prevent water loss, attenuating EIB.

The prevalence (Summary Statements 1-4) of EIB is poorly defined because there is no gold standard for diagnosis. EIB is frequently documented with asthma and reflects insufficient control of underlying asthma. Elite athletes have a higher prevalence of EIB than seen in the general population, varying with the intensity of exercise and the environment. EIB should be diagnosed by means of objective testing, preferably by using standardized bronchoprovocation challenge, because the prevalence of EIB varies with the type of challenge and climatic