

ESPE Patient Information on COVID-19 and Pediatric Endocrine Diseases

Disease specific information and advice: ADRENAL INSUFFICIENCY

This flyer aims to provide guidance on prevention and treatment of COVID-19 in patients with a pediatric endocrine disease. It summarizes fast facts about COVID-19, and what children with endocrine diseases and their parents need to know regarding their health and well-being. These recommendations are based on the latest knowledge and expert opinion. If you still have concerns or questions after reading this information, please contact your physician or healthcare provider.

What is COVID-19?

Infection by coronavirus can lead to disease COVID-19, a flu-like illness. On March 11, 2020, the World Health Organization declared COVID-19 a pandemic. People who are confirmed to have COVID-19 have exhibited mild to severe respiratory illness with fever, coughing and shortness of breath. Additional symptoms include chills, muscle pain, sore throat, loss of taste or smell and possibly gastrointestinal symptoms like nausea, vomiting or diarrhea. Symptoms may appear 2–14 days after exposure to the virus. Risk on severe course of COVID-19 is associated with older age, obesity with cardiovascular risk factors or type 2 diabetes mellitus.

Children and COVID-19

Children play a minor role in coronavirus spread. Coronavirus infection mostly distributes from adult to adult. Distribution among children or from children to adults is rare. In children, the disease course of COVID-19 is generally mild, mostly they do not get sick or only mildly and for a short time. Often no special treatment is required other than simple supportive measures (drink enough water, use paracetamol). Few children have complaints that are so serious that hospitalization is necessary.

Are children with Adrenal Insufficiency at increased risk of COVID-19 infection or severe course in COVID-19?

Currently, there is no evidence indicating that patients with Adrenal Insufficiency are at an increased risk for COVID-19 infection. However, several studies have demonstrated that adult patients with Adrenal Insufficiency have a 2-fold to 8-fold higher risk for infection in general, which inherently increases the risk of death from COVID-19. In patients with Adrenal Insufficiency, the innate immune response is impaired, thereby potentially compromising antiviral immune defense mechanisms and increasing patients' susceptibility to respiratory viral infections. Moreover, the life-long requirement for supraphysiologic glucocorticoid replacement using currently available preparations may place patients with Adrenal Insufficiency at an increased risk for infectious diseases.

What should children with Adrenal Insufficiency do in case of an infection?

Infection is a condition of acute stress, which requires an increased dose of glucocorticoids. Since adrenal crises precipitated by infections are the major cause of death in patients with Adrenal Insufficiency, an immediate modification of the glucocorticoid regimen, as indicated in so-called “sick day rules,” should be conducted at the beginning of an infection. Whenever patients with Adrenal Insufficiency present with cough, sputum, or fever ($\geq 37.5^{\circ}\text{C}$), which are symptoms suspicious for COVID-19, they need to immediately double or triple their daily oral glucocorticoid dose and continue with the increased dose until the symptoms resolve in order to avoid adrenal crisis. In addition, patients need to consume more electrolyte-containing fluids. If their condition deteriorates, or they cannot eat due to vomiting or diarrhea, they should be admitted to the hospital to receive intravenous hydrocortisone. Furthermore, patients are advised to obtain sufficient hydrocortisone and fludrocortisone supplementation to prepare for “sick day rules” and “social distancing” during the COVID-19 outbreak in order to maintain the social confinement when required for impeding the COVID-19 outbreak spread.

Do the coronavirus prevention measures differ for children with Adrenal Insufficiency compared to the general population?

The coronavirus measures are no different for children with Adrenal Insufficiency than for healthy children. No extra precautions are needed other than the usual advice. They should go to school when permitted by the general coronavirus prevention measures. The coronavirus will be around for a long time; therefore, it is important for children to attend school regularly to allow for their education, as well as normal development and general well-being.

What should children with Adrenal Insufficiency do to protect themselves?

For COVID-19, there is not yet a vaccine. To prevent coronavirus from spreading, there are several general recommendations. Wash your hands often with soap and water for at least 20 seconds; do not touch your eyes, nose and mouth with unwashed hands; avoid close contact with people who are sick; stay at home when you are sick; and disinfect frequently touched objects and surfaces. Strict adherence to COVID-19 prevention measures, like social distancing, is necessary. Be prepared, just in case. Have your doctor’s phone numbers ready, including how to reach them at night and on weekends or holidays.

What is the advice on the regular monitoring of children with Adrenal Insufficiency?

Regular evaluation of children with Adrenal Insufficiency should be offered and should be available during the coronavirus epidemic. Consultations may be provided by telephone or video-calls. Ensure that there are enough medical supplies on hand and have access to refills in the event of quarantine.

Disclaimer: Due to the emerging nature of the COVID-19 crisis, this document is not based on extensive systematic review or meta-analysis, but on literature review and expert opinion. The document should be considered as guidance only; it is not intended to determine an absolute standard of medical care. Healthcare staff need to consider individual circumstances in their management for patients.

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