Sävendahl L et al. Long-term mortality after childhood growth hormone treatment: the SAGhE cohort study. Lancet Diabetes Endocrinol. 2020;8(8):683-92. doi: 10.1016/S2213-8587(20)30163-7.

BACKGROUND: Recombinant human growth hormone has been used for more than 30 years and its indications have increased worldwide. There is concern that this treatment might increase mortality, but published data are scarce. We present data from the entire dataset of all eight countries of the Safety and Appropriateness of Growth hormone treatments in Europe (SAGhE) consortium, with the aim of studying long-term overall and cause-specific mortality in young adult patients treated with recombinant human growth hormone during childhood and relating this to the underlying diagnosis.

METHODS: This cohort study was done in eight European countries (Belgium, France, Germany, Italy, The Netherlands, Sweden, Switzerland, and the UK). Patients were classified a priori based on pre-treatment perceived mortality risk from their underlying disease and followed up for cause-specific mortality. Person-years at risk of mortality and expected rates from general population data were used to calculate standardised mortality ratios (SMRs).

FINDINGS: The cohort comprised 24 232 patients treated with recombinant human growth hormone during childhood, with more than 400 000 patient-years of follow-up. In low-risk patients with isolated growth hormone deficiency or idiopathic short stature, all-cause mortality was not significantly increased (SMR 1·1, 95% CI 0·9-1·3). In children born small for gestational age, all-cause mortality was significantly increased when analysed for all countries (SMR 1·5, CI 1·1-1·9), but this result was driven by the French subcohort. In patients at moderate or high risk, mortality was increased (SMR 3·8, 3·3-4·4; and 17·1, 15·6-18·7, respectively). Mortality was not associated with mean daily or cumulative doses of recombinant human growth hormone for any of the risk groups. Cause-specific mortality from diseases of the circulatory and haematological systems was increased in all risk groups.

INTERPRETATION: In this cohort, the largest, to our knowledge, with long-term follow-up of patients treated with recombinant human growth hormone during childhood, all-cause mortality was associated with underlying diagnosis. In patients with isolated growth hormone deficiency or idiopathic short stature, recombinant human growth hormone treatment was not associated with increased all-cause mortality. However, mortality from certain causes was increased, emphasising the need for further long-term surveillance.