

Press release – ESE statement: COVID-19 and endocrine and metabolic diseases. An updated statement from the European Society of Endocrinology

New expert statement confirms strong links between our hormones and COVID-19

The endocrine system is strongly involved in SARS-CoV-2 infection – so much so that evidence of an “endocrine phenotype” of COVID-19 has emerged, according to a statement by the European Society of Endocrinology (ESE) published in the journal *Endocrine* in April 2021. Leading endocrinology researchers looked into the evidence that has accumulated over the past year since the pandemic emerged, and consistently found evidence for links across a variety of endocrine conditions. This statement constitutes an update of a March 2020 statement¹ that was of the earliest and most read pieces delineating the involvement of the endocrine system in COVID-19.

Dr Manel Puig from the Universitat Autònoma de Barcelona in Spain and first author on the statement said “the evidence is clear. The effect on hormones cannot be ignored in the context of COVID-19”. He added “we need to be aware of the endocrine consequences of COVID-19 for patients with a known endocrine condition such as diabetes, obesity or adrenal insufficiency, but also for people without a known condition. Vitamin D insufficiency for example is very common, and the knowledge that this condition has emerged frequently in the hospitalized COVID-19 population and may negatively impact outcomes should not be taken lightly”.

Dr Puig, together with Profs Marazuela, Yildiz and Giustina based in Madrid, Ankara and Milano looked at the available evidence with respect to COVID-19 across a number of endocrine conditions and related factors: diabetes, obesity, nutrition, hypocalcemia, vitamin D insufficiency, vertebral fractures, adrenal insufficiency, as well as pituitary/thyroid issues and sex hormones.

Diabetes has emerged as one of the most frequent comorbidities associated with severity and mortality of COVID-19, according to a rapidly increasing amount of published data on the incidence of COVID-19 in patients over the last year. Mortality in type 1 or type 2 diabetes has consistently increased during the year of pandemic – and evidence is emerging that a bidirectional relationship between diabetes and COVID-19 may exist, both in terms of worsening existing conditions and new onset of diabetes.

The researchers identified similar trends for patients with obesity. Obesity increases susceptibility to SARS-CoV-2 and the risk for COVID-19 adverse outcomes. They posit that nutritional management is important both for patients with obesity or undernourishment in order to limit their increased susceptibility and severity of infection. Vitamin D, calcium and bone are other areas showing a growing body of evidence that better monitoring and solutions for patients are needed in the context of COVID-19.

With regard to vaccination, the statement concludes that available evidence suggests COVID-19 vaccination should not be handled differently in patients with stable endocrine diseases. However, patients with adrenal insufficiency may need adjusted glucocorticoid treatment to address side effects such as fever. The authors suggest data from the field should be collected in an international

¹ COVID-19 and endocrine diseases A statement from the European Society of Endocrinology:
https://www.ese-hormones.org/media/2223/covid-and-endocrine-diseases-ese-statement-final_23032020.pdf

database in order to form firm conclusions on this matter. They also present a decalogue² for endocrinologists and patients with endocrine and metabolic conditions in the conclusions of the statement.

This knowledge highlights the important role endocrinologists will need to play in future research on COVID-19 and other global health issues.

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Notes for Editors

1. The full statement is available here <https://doi.org/10.1007/s12020-021-02734-w>
2. The ESE “decalogue” for endocrinologists in the COVID-19 pandemic can be found [here](#).
3. Authors of this study will be presenting this study and other related research during the 23rd European Congress of Endocrinology (e-ECE 2021), among others:
 - a. Symposium “COVID-19 and hormones – the role of Endocrinologists in preventing and improving outcomes of COVID-19” on 23 May 2021 13:20 - 13:30
 - b. Symposium “Covid: The sequelae of the virus” on 24 May 2021 16:00 - 17:30
4. e-ECE 2021 is held online on the 22-26 May 2021. You can access it [here](#).
5. The [European Society of Endocrinology](#) was created to promote research, education and clinical practice in endocrinology by the organisation of conferences, training courses and publications, by raising public awareness, liaison with national and international legislators and by any other appropriate means.
6. Read more about endocrinology and COVID-19 on our dedicated COVID-19 resource [webpage](#).
7. Additional information about vaccination can be found in the ESE [statement](#) regarding COVID-19 vaccinations for patients with stable endocrine conditions.

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Abstract

COVID-19 and endocrine and metabolic diseases. An updated statement from the European Society of Endocrinology

Category: COVID-19

BACKGROUND COVID-19 has completely changed our daily clinical practice as well as our social relations. Many organs and biological systems are involved in SARS-CoV-2 infection, either due to direct virus-induced damage or to indirect effects that can have systemic consequences.

Endocrine system is not only an exception but its involvement in COVID-19 is so relevant that an “endocrine phenotype” of COVID-19 has progressively acquired clinical relevance.

AIM We have been appointed by the European Society of Endocrinology (ESE) to update with the current statement ESE members and the whole endocrine community on the emerging

² https://www.ese-hormones.org/media/2225/an-ese-decalogue-for-endocrinologists-in-the-covid-19-pandemic_23032020.pdf

endocrine phenotype of COVID-19 and its implication for the prevention and management of the disease.

CONCLUSIONS

- Diabetes has a major role in this phenotype since it is one of the most frequent comorbidities associated with severity and mortality of COVID-19. Careful management including treatment modifications may be required for protecting our patients rather with known diabetes from the most dangerous consequences of COVID-19 or hospitalized with COVID-19, but also in patients with SARS-CoV-2 induced newly onset diabetes.
- Obesity increases susceptibility to SARS-CoV-2 and the risk for COVID-19 adverse outcome. Adequate nutritional management needs to be granted to patients with obesity or undernourishment in order to limit their increased susceptibility and severity of COVID-19 infection.
- Lack of vitamin D, hypocalcemia and vertebral fractures have also emerged as frequent findings in the hospitalized COVID-19 population and may negatively impact on the outcome of such patients.
- Also, in patients with adrenal insufficiency prompt adaptation of glucocorticoid doses may be needed.
- Moreover, in this updated statement role of sex hormones as well as peculiar pituitary and thyroid aspects of COVID-19 have been included. Finally, in view of the mass vaccination, potential implications for endocrine patients should be considered.