**Best Evidence Topic Report – COVID-19 Domus Medica dossier**

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| **Title** | **The effect of asthmatic agents on COVID-19** |
| **Original Question** | Is er een negatief effect op het verloop van de luchtwegenaandoening bij corona, door het gebruik van bijvoorbeeld symbicort? |
| Report by | Vanlommel Jens, Vanlommel Niels, Apr. Vercammen Hendrik en Vingerhoets Thomas |
| Search checked by | Josefien van Olmen / Hilde Philips / Paul Van Royen |
| Clinical scenario | Wat met de inhalatie medicatie bij een astma patiënt die lijdt aan COVID-19 |
| Answerable question (PICO/PIRT/PEO/…) | **P**: Asthmatic patients with COVID-19  **I:** Inhalation corticosteroids and ß-mimetics  **C:** No intervention  **O:**  Effect on COVID-19 progression |
| Search terms | Pubmed: ((severe acute respiratory syndrome coronavirus 2 [Supplementary Concept]) OR COVID-19 [Supplementary Concept]) AND (corticosteroid\* OR inhalation)  Filter: language: English |
| Search date | 14/04/2020 |
| Search outcome (number of hits) | 8 |
| Relevant papers & guidelines(number of final inclusions) | (this can be done in an evidence table) |
| Expert opinions | / |
| Flow chart | Inclusion and exclusion criteria   * Selection criteria: text: relevance on COVID-19 AND (corticosteroids OR inhalation)   2 resultaten  Pubmed  8 resultaten |

Table 1: Evidence table

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| --- | --- | --- | --- | --- | --- |
| Title | Author, date and country | Study type | Main risks of bias | characteristics | Key results |
| On the use of corticosteroids for 2019-nCoV pneumonia(1) | Shang et al.  11/02/2020  China | Scientific correspondence | Concept remains unproven furthermore, the hypothesis is based on systemic corticosteroids.  Further clinical trials are needed | Systemic corticosteroids in 2019-nCoV pneumonia | “Potential risks associated with high-dose systemic corticosteroids in treating 2019-nCoV pneumonia are secondary infections, long-term complications, and prolonged virus shedding. Benefits and harms should be carefully weighed before using corticosteroids, corticosteroids should be used prudently in critically ill patients with 2019-nCoV pneumonia. For patients with hypoxaemia due to underlying diseases or who regularly use corticosteroids for chronic diseases, further use of corticosteroids should be cautious. Corticosteroid treatment is a double-edged sword. In line with the expert consensus, we oppose liberal use of corticosteroids and recommend short courses of corticosteroids at low-to-moderate dose, used prudently, for critically ill patients with 2019-nCov pneumonia”. |
| Clinical evidence does not support corticosteroid treatment for 2019-nCoV lung injury (2) | Russel et al. | Comment | Concept remains unproven furthermore, the hypothesis is based on systemic corticosteroids.  Further clinical trials are needed | Systemic corticosteroid uses in coronavirus and similar outbreaks | “Systemic corticosteroids suppress lung inflammation but also inhibit immune responses and pathogen clearance”. |

Table 2: Guideline

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Organisation | Country | For which context (1st line, hospital, community, …) | For which professional group | Topic | Evidence-base | Key recommendations |
| GINA (Global Initiative for Asthma) | / | Community | General practioner, pneumologist etc. | COVID-19: GINA Answers to Frequently Asked Questions on asthma Management(3) | Consensus-based | People with asthma should continue all of their inhaled medication, including inhaled corticosteroids, as prescribed by their doctor.  In acute asthma attacks patients should take a short course of oral corticosteroids if instructed in their asthma action plan or by their healthcare provider, to prevent serious consequences  In rare cases, patients with severe asthma might require long-term treatment with oral corticosteroids (OCS) on top of their inhaled medication(s). This treatment should be continued in the lowest possible dose in these patients at risk of severe attacks/exacerbations. Biologic therapies should be used in severe asthma patients who qualify for them, in order to limit the need for OCS as much as possible. Nebulisers should, where possible, be avoided for acute attacks due to the increased risk of disseminating COVID-19 (to other patients AND to physicians, nurses and other personnel). |
| WHO | / | hospital | Clinicians | Clinical management of severe acute respiratory infection when COVID-19 is suspected(4) | Consensus-based | Given the lack of effectiveness and possible harm, routine corticosteroids should be avoided unless they are indicated for another reason. Other reasons may include exacerbation of asthma or COPD, septic shock, and risk and benefit analysis needs to be conducted for individual patients. |
| Centre for Disease Control and Prevention (CDC) | US | 1ste line, hospital and community | Patients | COVID-19: People with moderate to severe asthma(5) | Consensus-based | Keep your asthma under control by following your asthma action plan. Continue your current medication, including your inhalers with steroids. Don’t stop any medication or change your asthma treatment plan without talking to your healthcare provider. |
| National Institute for Health and Care Excellence | England | 1ste line, hospital and community | Health and care practitioners  health and care staff involved in planning and delivering services  commissioner | COVID-19 rapid guideline: severe asthma(6) | Consensus-based | Tell patients on maintenance oral corticosteroids (for asthma), or their parent or carer, to continue to take them at their prescribed dose because stopping them can be harmful. |
| Nederlands Huisartsen Genootschap (NHG) | Nederland | 1ste line, hospital and community | General practioner | Corona: behandeling(7) | Consensus-based | Patiënten met astma of COPD die een toename van klachten ervaren óf een longaanval doormaken, worden conform de daarvoor geldende NHG-Standaarden [Astma bij kinderen](https://www.nhg.org/standaarden/samenvatting/astma-bij-kinderen), [Astma bij volwassenen](https://www.nhg.org/standaarden/samenvatting/astma-bij-volwassenen) en [COPD](https://www.nhg.org/standaarden/samenvatting/copd) behandeld met luchtwegverwijders, inhalatiecorticosteroïden of prednison oral.  Vernevelen wordt niet aangeraden in de praktijk of op de huisartsenpost vanwege de (toegenomen) kans op verspreiding van het coronavirus. Het heeft de voorkeur om kortwerkende luchtwegverwijders te geven via een dosisaerosol met voorzetkamer. Als er op basis van van de klinische conditie van patiënt toch een indicatie bestaat tot vernevelen, horen daarbij passende maatregelen voor zorgverleners, waaronder een FFP2 masker |
| Uptodate | / | 1ste line, hospital and community | General practioner | An overview of asthma management: advice related to COVID-19(8) | Consensus-based | Asthma does not appear to be a strong risk factor for COVID-19. Poorly controlled asthma may lead to a more complicated disease course for those with COVID-19 infection. every effort should be made to avoid COVID-19 exposure and all regular medications necessary to maintain asthma control, including inhaled glucocorticoids, oral glucocorticoids, and biologic agents (eg, omalizumab, mepolizumab), should be continued during the COVID-19 pandemic. There is no good evidence that inhaled glucocorticoids or the biologic agents used for asthma have an adverse effect on the course of COVID-19 infection. |
| Munson Healthcare | United States of America | 1ste line, hospital and community | Health care providers | Inhalation Therapy for Suspected COVID-19 Patients(9) | Consensus-based | Following CDC guidance, MHC has implemented droplet precautions for all known or suspected COVID-19 patients, unless undergoing an aerosolizing procedure (ex. bronchoscopy, intubation, CPR, nebulized therapy), in which case airborne precautions are required.  For this reason, if bronchodilators are required, a metered-dose inhaler (with spacer if available) is preferred over nebulized therapy. |

Add conclusions of overall body of evidence here:

* Main results

Samenvattend is er in de huidige literatuur geen negatief of postitief effect van inhalatiecorticoïden op de progressie van COVID-19 bekend. Daarom conform de richtlijnen wordt er aangeraden om aan de behandelingschemata van astma geen wijzingen toe te passen. Over de toedieningsvorm van inhalatie medicatie in het algemeen, wordt het gebruik van vernevelingsapparaten afgeraden (zeker in de praktijk of huisartsenwachtpost) dit vanwege een vergrote kans op verspreiding van het Sars-Cov-2. Daarom geeft men momenteel de voorkeur aan dosisaerosolen met voorzetkamer.(3, 7, 9) Omtrent het gebruik van ß-mimetica in COVID-19 zijn er geen studies beschikbaar.

* Risks of bias

Alle data is momenteel gebasseerd op systemische corticoïden en niet op inhalatiecorticoïden. Er zijn in de toekomst clinical trials nodig om het effect van inhalatiecorticoïden op COVID-19 verder uit te wijzen.

* Heterogeneity: statistical and/or clinical

Er is geen heterogeniteit: alle geïncludeerde richtlijnen raden aan om inhalatiemediacatie bij astma verder te gebruiken tijdens een COVID-19 infectie. Verder wordt er door de richtlijnen afgeraden om vernevelingsapparaten te gebruiken. De huidige consensus raadt aan om gebruik te maken van dosisraerosols.

Add clinical bottom line here:

* What is your response rephrased for Domus Medica?

In de huidige literatuur is er niets bekend over het negatieve effect van inhalatiecorticoïden op het verloop van de luchtwegaandoeningen van COVID-19. Conform de richtlijnen wordt er aangeraden om aan de behandelingschemata van astma geen wijzingen toe te passen. Over de toedieningsvorm van de inhalatie medicatie, wordt momenteel het gebruik van vernevelingstoestellen afgeraden vanwege het vergrote risico op verspreiding van het SARS-CoV-2. Conform de richtlijnen wordt er aangeraden om dosisaerosolen met voorzetkamer te gebruiken.

References for Domus Medica Website

**Referenties**

1. Lianhan Shang JZ, Yi Hu,Ronghui Du,Bin Cao. On the use of corticosteroids for 2019-nCoV pneumonia. The Lancet Journal. 2020.

2. Russell CD, Millar JE, Baillie JK. Clinical evidence does not support corticosteroid treatment for 2019-nCoV lung injury. Lancet. 2020;395(10223):473-5.

3. GINA. COVID-19: GINA Answers to Frequently Asked Questions on asthma Management 2020 [cited 2020 07/04/2020]. Available from: <https://ginasthma.org/covid-19-gina-answers-to-frequently-asked-questions-on-asthma-management/>.

4. WHO. Clinical management of severe acute respiratory infection when COVID-19 is suspected [cited 2020 07/04/2020]. Available from: <https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected>.

5. CDC. People with Moderate to Severe Asthma 2020 [cited 2020 07/04/2020]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/asthma.html>.

6. NICE. COVID-19 rapid guideline: severe asthma 2020 [cited 2020 05/04/2020]. Available from: <https://www.nice.org.uk/guidance/ng166>.

7. nhg. Corona: behandeling 2020 [cited 2020 07/04/2020]. Available from: <https://www.nhg.org/coronavirus/behandeling>.

8. Fanta CH. An overview of asthma management 2020 [cited 2020 07/04/2020]. Available from: <https://www.uptodate.com/contents/an-overview-of-asthma-management?search=budesonide%20formoterol%20COVID-19&source=search_result&selectedTitle=1~112&usage_type=default&display_rank=1>.

9. Munson Healthcare. Inhalation Therapy for Suspected COVID-19 Patients 2020 [cited 2020 14/04/202]. Available from: <https://www.munsonhealthcare.org/media/file/Physician%20Services/COVID19/Communications/Inhalation%20Therapy%20for%20Suspected%20COVID-19%20Patients.pdf>.