

# 코로나바이러스 감염증-19 (COVID-19) 약물 치료에 관한 대한감염학회 지침 (요약본)

(version 2.0)

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본 권고안은 현재 국내 실정을 고려한 코로나바이러스 감염증-19 (COVID-19, 이하 코로나 19) 환자의 약물적 치료에 대한 기본적인 원칙을 제시하는 것으로서, 모든 대상자에 대해서 본 지침을 일률적으로 적용하는 것보다는 기본적으로 참고하되 각 환자의 여러 상황들을 고려한 의사의 최종적인 판단에 의한 진료가 중요하다. 또한 본 권고안은 개인적인 진료 및 교육 목적으로 활용될 수 있지만 상업적인 목적이나 진료 심사 목적 등으로 사용될 수 없으며, 어떠한 형태로든 다른 목적으로 사용하고자 하는 경우에는 지침 개발위원회에 서면 요구서를 제출하여 서면 동의를 받아야 한다.

이번 가이드라인은 대한감염학회와 한국보건의료연구원이 협업하여 코로나19 입원 환자의 치료에서 우선적으로 고려되는 약물들의 최신 근거 및 국외 권고를 검토하여 근거기반 방법론을 적용하여 권고안을 도출하였으며, 환자 중증도에 대한 분류는 각 국가 중증도 분류 비교 후 미국 NIH (National Institutes of Health)의 분류 체계를 수용하였다[1]. 다만, 코로나 19의 응급한 상황으로 인해 단기간에 신속한 권고문 개발이 요구되었기 때문에 폭넓은 다학제 구성이나 모든 데이터베이스의 검색과 같은 일부 방법론적인 부분을 엄격하게 적용할 수 없었다는 제한점이 있다.

향후 대한의학회 산하 여러 전문학회와 협업하여 범위와 임상질문을 좀더 확장하여 시간적 제약으로 인해 확인하지 못한 추가적인 치료방법 및 비약물적 중재법 등에 대해서도 최신의 근거기반 방법론을 적용한 권고문을 추가로 도출하고자 한다.

### CQ1. 렘데시비르(Remdesivir)

1-1. 코로나19 입원 환자에게 임상적 중증도에 관계없이 렘데시비르(Remdesivir) 투여를 권고하는가?

1-2. 코로나19 입원 환자에서 산소치료가 요구되는 경우, 렘데시비르(Remdesivir) 투여를 권고하는가?

- 1-1. 산소치료가 필요하지만 인공호흡기나 ECMO 치료까지 필요하지 않는 코로나19 환자에게 렘데시비르(Remdesivir)를 사용할 수 있다. (근거수준: 중등도, 권고등급: B)

1-2. 1번에 해당되지 않는 코로나19 환자들에게 렘데시비르의 투여에 대한 권고를 보류한다. (근거수준: 중등도, 권고등급 : I (권고보류))

### CQ2. 하이드록시클로로퀸(Hydroxychloroquine) +/- 아지스로마이신(azithromycin)

코로나19 환자에게 하이드록시클로로퀸(Hydroxychloroquine, HCQ) 혹은 하이드록시클로로퀸과 아지스로마이신(azithromycin, AZM) 병합 투여를 권고하는가?

코로나19 환자에게 하이드록시클로로퀸(Hydroxychloroquine, HCQ) 단독 투여나 아지스로마이신(azithromycin, AZM)과의 병합 투여를 모두 권고하지 않는다. (근거수준: 높음, 권고등급: C)

### CQ3. 로피나비르/리토나비르(Lopinavir/ritonavir)

코로나19 환자에게 로피나비르/리토나비르(lopinavir/ritonavir, LPV/r) 투여를 권고하는가?

코로나19 환자에게 로피나비르/리토나비르(lopinavir/ritonavir, LPV/r)의 투여를 권고하지 않는다. (근거수준: 높음, 권고등급: C)

#### CQ4. 기타 항바이러스제(favipiravir, ribavirin, umifenovir, baloxavir marboxil 등)

코로나19 환자에게 파비피라비르(favipiravir), 리바비린(ribavirin), 우미페노비르(umifenovir), 발록사비르(baloxavir marboxil) 등 기타 바이러스 억제 효과가 있다고 알려진 약제의 투여를 권고하는가?

코로나19 환자에게 파비피라비르(favipiravir), 리바비린(ribavirin), 우미페노비르(umifenovir), 발록사비르(baloxavir marboxil) 등 기타 바이러스 억제 효과가 있다고 알려진 약제 투여는 임상시험 외에는 권고하지 않는다. (근거수준: 낮음, 권고등급: C)

#### CQ5. 스테로이드(Steroid )

코로나 19 환자에게 스테로이드(steroid) 투여를 권고하는가?

5-1. 중증(severe) 또는 심각한(critical) 코로나19 환자에게 스테로이드(Steroid) 투여를 권고한다.

(근거수준: 중등도, 권고등급: A)

\* 임상적 고려사항: 스테로이드는 하루 덱사메타손 6 mg을 7-10일간 투여하며, 다른 스테로이드를 같은 역가로 대체 투여 할 수 있다. (하이드로코티손 150-200 mg, 프레드니손 40 mg, 메틸프레드니솔론 32 mg)

5-2. 중증이 아닌 코로나19 환자 (non-severe)에 대해서는 스테로이드 투여를 권고하지 않는다

(근거수준: 중등도, 권고등급 : C)

**CQ6. 인터루킨-6(Interleukin-6) 억제제(tocilizumab, sarilumab 등)**

코로나19 환자에게 토실리주맙(tocilizumab), 사릴루맙(sarilumab) 등 인터루킨-6(Interleukin-6, IL-6) 억제제의 투여를 권고하는가?

- 6-1. 중증 코로나19 환자에게 인터루킨-6(Interleukin-6, IL-6) 억제제는 임상 시험 범위 내에서 사용할 수 있다. (근거수준: 중등도, 권고등급: B)
- 6-2. 경증 코로나19 환자에게 인터루킨-6 억제제 투여를 권고하지 않는다. (근거수준: 중등도, 권고등급 : C)

**CQ7. 인터루킨-1(Interleukin-1) 억제제**

코로나 19 환자에게 인터루킨-1(Interleukin-1, IL-1) 억제제 투여를 권고하는가?

코로나19 환자에게 인터루킨-1(Interleukin-1, IL-1) 억제제 투여에 대한 권고를 보류한다.  
(근거수준: 낮음, 권고등급: I (권고보류))

**CQ8. 인터페론(Interferon)**

코로나 19 환자에게 인터페론(Interferon) 투여를 권고하는가?

코로나19 환자에게 인터페론(Interferon)은 임상 시험 범위 내에서 사용할 수 있다.  
(근거수준: 낮음, 권고등급: B)

### CQ9. 회복기 혈장 치료

코로나19 환자에게 회복기 혈장 치료를 권고하는가?

코로나19 환자에게 회복기 혈장 치료에 대한 권고를 보류한다. (근거수준: 낮음, 권고등급: I)

### CQ10. 정맥용 면역글로불린(conventional intravenous immunoglobulin)

코로나 19 환자에게 일반적인 정맥용 면역글로불린 (Conventional IVIG) 투여를 권고하는가?

코로나19 환자에게 일반적인 정맥용 면역글로불린 (conventional intravenous immunoglobulin, IVIG) 투여는 권고하지 않는다. 다만 합병증 치료에서 적응증이 될 때에는 면역글로불린 사용을 배제하지 말아야 한다.  
(근거수준: 낮음, 권고등급: C)

\* 이 내용은 웹사이트 요약본으로 전체 가이드라인의 일부 문장을 조금 수정한 부분이 있습니다.

중등도 분류 체계 및 정의 (NIH 중증도 분류 체계 참조)

중등도 분류	National Institutes of Health (미국)
1. 무증상	<p><b>코로나19 검사에 대해 양성 반응은 보이지만 일치하는 증상이 없음</b></p> <p>Individuals who test positive for SARS-CoV-2 using a virologic test (i.e., a nucleic acid amplification test or an antigen test), but who have no symptoms that are consistent with COVID-19.</p>
2. 경증 (Mild)	<p><b>코로나19의 다양한 징후와 증상을 가지고 있지만 호흡곤란, 기타 흉부촬영 검사상 이상 소견 없음</b></p> <p>Individuals who have any of the various signs and symptoms of COVID-19 (e.g., fever, cough, sore throat, malaise, headache, muscle pain, nausea, vomiting, diarrhea, loss of taste and smell) but who do not have shortness of breath, dyspnea, or abnormal chest imaging.</p>
3. 중등도 (Moderate)	<p><b>임상적인 평가 또는 영상검사에서 호흡기질환 소견이면서 산소포화도 94% 이상</b></p> <p>Individuals who show evidence of lower respiratory disease during clinical assessment or imaging and who have saturation of oxygen (<math>SpO_2</math>) <math>\geq 94\%</math> on room air at sea level.</p>
4. 중증 (Severe)	<p><b>산소포화도 94%미만, (<math>PaO_2 / FiO_2</math>) <math>&lt; 300</math> mmHg, 호흡빈도 분당 30회 초과 또는 폐실질 침투 50% 초과</b></p> <p>Individuals who have <math>SpO_2 &lt; 94\%</math> on room air at sea level, a ratio of arterial partial pressure of oxygen to fraction of inspired oxygen (<math>PaO_2 / FiO_2</math>) <math>&lt; 300</math> mmHg, respiratory frequency <math>&gt; 30</math> breaths per minute, or lung infiltrates <math>&gt; 50\%</math>.</p>
5. 심각 (Critical)	<p><b>호흡부전, 패혈성 쇼크 그리고/또는 다발성 기관 장애</b></p> <p>Individuals who have respiratory failure, septic shock, and/or multiple organ dysfunction.</p>

## GRADE 근거수준과 의미

근거수준	정의
높음 (high)	효과의 추정치가 실제 효과에 가깝다는 것을 매우 확신할 수 있다.
중등도 (moderate)	효과의 추정치에 대한 확신을 중등도로 할 수 있다. 효과의 추정치는 실제 효과에 근접할 것으로 보이지만 상당히 다를 수도 있다.
낮음 (low)	효과의 추정치에 대한 확신이 제한적이다. 실제 효과는 효과 추정치와 상당히 다를 수 있다.
매우 낮음 (very low)	효과의 추정치에 대한 확신이 거의 없다. 실제 효과는 효과의 추정치와 상당히 다를 것이다.

## GRADE 권고등급과 의미

권고등급		정의
근거 기반 권고	<b>A</b>	강하게 권고함 (Strong for recommend) 해당 치료의 이득과 위해, 근거수준, 가치와 선호도, 자원을 고려했을 때 대부분의 임상상황에서 강하게 권고한다.
	<b>B</b>	조건부 권고함 (Conditional recommend) 해당 치료의 사용은 임상상황 또는 환자/사회적 가치에 따라 달라질 수 있어, 선택적으로 사용하거나 조건부로 선택할 것을 제안한다.
	<b>C</b>	시행을 권고하지 않음 (against recommend) 해당 치료의 위해가 이득보다 더 클 수 있고, 임상적 상황 또는 환자/사회적 가치를 고려하여, 시행을 권고하지 않는다.
	<b>I</b>	권고 보류(inconclusive) 해당 치료의 이득과 위해, 근거수준, 가치와 선호도, 자원을 고려했을 때 근거수준이 너무 낮거나, 이득/위해 저울질이 심각하게 불확실, 또는 변이가 커서 중재 시행여부를 결정하지 않는다. 이는 치료의 사용을 권하거나 반대할 수 없다는 의미로서, 임상의 판단을 따르도록 한다
전문가 합의 권고 (Expert consensus)		임상적 근거문헌은 부족하나 해당 치료의 이득과 위해, 근거수준, 가치와 선호도, 자원을 고려했을 때 임상적 경험과 전문가의 합의에 따라 사용을 권고한다.

● 권고문 요약

임상질문	권고문	근거수준	권고등급
CQ1. Remdesivir	1-1. 산소치료가 필요하지만 인공호흡기나 ECMO치료까지 필요하지 않는 코로나19 환자에게 렘데시비르(Remdesivir)를 사용할 수 있다.	중등도	B
	1-2. 1번에 해당되지 않는 코로나19 환자들에게 렘데시비르의 투여에 대한 권고를 보류한다.	중등도	I
CQ2. HCQ +/- azithromycin	코로나19 환자에게 하이드록시클로로퀸(Hydroxychloroquine, HCQ) 단독 투여나 아지스로마이신(azithromycin, AZM)과의 병합 투여를 모두 권고하지 않는다.	높음	C
CQ3. LPV/r	코로나19 환자에게 로피나비르/리토나비르(lopinavir/ritonavir, LPV/r)의 투여를 권고하지 않는다	높음	C
CQ4. 기타 항바이러스제	코로나19 환자에게 파비피라비르(favipiravir), 리바비린(ribavirin), 우미페노비르(umifenovir), 발록사비르(baloxavir marboxil) 등 기타 바이러스 억제 효과가 있다고 알려진 약제 투여는 임상시험 외에는 권고하지 않는다.	낮음	C
CQ5. 스테로이드	5-1. 중증(severe) 또는 심각한(critical) 코로나19 환자에게 스테로이드(Steroid) 투여를 권고한다	중등도	A
	임상적 고려사항: 스테로이드는 하루 덱사메타손 6 mg을 7-10일간 투여하며, 다른 스테로이드를 같은 역가로 대체 투여 할 수 있다. (하이드로코티손 150-200 mg, 프레드니손 40 mg, 메틸프레드니솔론 32 mg)		

	5-2. 중증이 아닌 코로나19 환자 (non-severe)에 대해서는 스테로이드 투여를 권고하지 않는다	중등도	C
CQ6. <b>IL-6 억제제</b>	6-1. 중증 코로나19 환자에게 인터루킨-6 (Interleukin-6, IL-6) 억제제는 임상 시험 범위 내에서 사용할 수 있다	중등도	B
	6-2. 경증 코로나19 환자에게 인터루킨-6 억제제 투여를 권고하지 않는다	중등도	C
CQ7. <b>IL-1 억제제</b>	코로나19 환자에게 인터루킨-1(Interleukin-1, IL-1) 억제제 투여에 대한 권고를 보류한다	낮음	I
CQ8. <b>Interferon</b>	코로나19 환자에게 인터페론(Interferon)은 임상 시험 범위 내에서 사용할 수 있다.	낮음	B
CQ9. <b>회복기 혈장</b>	코로나19 환자에게 회복기 혈장 치료에 대한 권고를 보류한다.	낮음	I
CQ10. <b>Conventional IVIG</b>	코로나19 환자에게 일반적인 정맥용 면역글로불린 (conventional intravenous immunoglobulin, IVIG) 투여는 권고하지 않는다. 다만 합병증 치료에서 적응증이 될 때에는 면역글로불린 사용을 배제하지 말아야 한다 .	낮음	C

## [참고 문헌]

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### CQ1.

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