



Risk of Transmission of Respiratory Viruses during Aerosol-Generating Medical Procedures (AGMPs) Revisited in the COVID-19 Pandemic: A Systematic Review

Summary

The findings reported in this brief are current to 09 Sept 2021. The systematic review evaluated the risk to healthcare workers (HCWs) of catching a virus when performing an aerosol-generating medical procedure (AGMP). Thirty eight studies involving viruses causing respiratory illness were included. The results suggested that performing an AGMP can increase the risk of virus transmission to HCWs. This finding could not be made with certainty, however, because studies often did not say which AGMP was performed. Other important information like how sick patients were, which type of protective equipment was used, how long the AGMP took to perform, and the vaccination status of the HCWs and patients was also often missing.

Implications

More research is needed into the risk of viruses being transmitted to HCWs when they perform AGMPs, especially on children. The term AGMP should also be defined more clearly in studies. There is a need among researchers to be complete, clear and consistent when reporting PPE use in AGMP studies.

Reference: J Leal, B Farkas, L Mastikhina ... O Larios. 2022. *Risk of Transmission of Respiratory Viruses during Aerosol-Generating Medical Procedures (AGMPs) Revisited in the COVID-19 Pandemic: A Systematic Review*.

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What is the current situation?

When doing their jobs, healthcare workers (HCWs) sometimes need to perform aerosol-generating medical procedures (AGMPs) on patients. Three common examples include suctioning a person's airway, performing cardiopulmonary resuscitation (CPR), or inserting medical tubes to breathe (intubation). AGMPs can release fine solid or liquid particles from the patient, such as saliva, into the air. If a patient also has a respiratory virus (e.g., COVID-19), this too may be released at the same time. Researchers would like to know if HCWs are more likely to catch an infection from a patient during an AGMP than from close contact not involving such a procedure.

What is the objective?

A systematic review is a well-planned and structured way of comparing what is already known about a topic. The main objective of this systematic review was to find and evaluate existing studies looking at the risk to HCWs of catching viruses when performing AGMPs. The review also had two secondary objectives. The first was to determine whether there were differences between children and adults in virus transmission when AGMPs are performed. The second was to evaluate the role of personal protective equipment (PPE) in reducing the risk of transmission during AGMPs.

How was the review conducted?

Seven scientific databases were searched to identify research published on this topic up to 09 September 2021. Studies were included for review regardless of whether they specified which AGMP was being investigated. Studies examining multiple AGMPs, even if these were not identified individually, were also included. The review looked at use of PPE (e.g., N95 masks) during AGMPs as well.

What did the review find?

Thirty-eight studies were included in the review, of which 23 involved COVID-19, 10 involved Severe Acute Respiratory Syndrome (SARS), and five looked at other respiratory illnesses. Researchers studied a variety of AGMPs but did not always state exactly which ones. This lack of detail limited what could be learned from the systematic review. In 16 studies that did not specify which AGMPs were used, statistics showed a possible connection between AGMPs and transmission of COVID-19. In 17 COVID-19 and SARS studies that identified both which AGMPs had been used and reported statistical tests, most did not show an increased risk of transmission during AGMPs. There was some risk for specific AGMPs, however, such as intubation, airway suctioning, or putting a patient on a mechanical ventilator. Overall, the studies were difficult to compare because important details were not always reported clearly. No studies about AGMPs involving children were found.