The “immunity debt” of the COVID19 pandemic

Unprecedented declines in common childhood infections were observed during the COVID 19 pandemic. These were mainly viral respiratory tract infections, gastroenteritis and some serious bacterial infections due to S. Pneumoniae, N. meningitides and H. Influenza. Even chicken pox fell by almost 40% in France during 2020. All this is largely attributed to the phenomenal implementation of non-pharmacological measures like masking, social distancing and hand hygiene. The fact that in the same period urinary tract infections did not decline gives credence to the idea that lower respiratory tract infections were not merely due to mere underreporting. This was important because it freed up valuable healthcare resources during the pandemic.

However this may add to the population of susceptible individuals resulting in larger epidemics in times to come which has been labelled the “immunity debt”. For instance in Australia, no RSV infections were documented in their regular season in the first half of 2020 but was followed by a larger surge in the latter half of 202 which is not the usual season in the Southern hemisphere.

Seminal work done in the 1980’s by Gray has documented that children develop repeated asymptomatic infections with various strains of S. Pneumoniae in the first 2 years of life which help in developing a robust immune response to both S. Pneumoniae as well as other viral invaders by blocking various entry points. The pandemic has interrupted the usual circulation routes of these bacteria due to the various interventions like school closures and lock downs. This may finally culminate in larger epidemics in subsequent times.

Besides the “immunity debt” which our children may have to repay at higher cost at a later debt, the worrisome fact is the decline in vaccinations rates all over the world. This may result in a surge of vaccine preventable infections in common times.

Interventions which pediatricians can undertake are emphasizing catch up vaccination of all regular vaccines and encourage other optional vaccine such as influenza, chicken pox, Rota virus and pneumococcus. (Infectious Diseases Now, 2021)

Guidelines for evaluating febrile infants below 2 months

The American Academy of Pediatrics has just released clinical practice guidelines for the evaluation of well looking febrile infants below 2 months. This is an important problem for pediatricians.

The guidelines are based on data collected from Pediatric Research in Office Practice Network in the US. When a pediatrician sees a febrile infant, the key question we wrestle over is “Does this infant have an invasive bacterial infection or not?”

In the current guidelines, all infants below 21 days need to be admitted. Blood, urine and CSF cultures need to be taken. Empiric intravenous antibiotics must be started till reports are available. Samples for urine culture must be obtained either by catheterization or supra-pubic aspiration.

For infants between 22-28 days, while a urine and blood culture is mandatory, CSF culture may be deferred if procalcitonin levels are below 0.5 ng/mL. Babies between 29-60 days are considered low risk, and merely doing a urine routine examination is enough. Only if it is abnormal, urine cultures may be performed. However, blood cultures and monitoring in hospital with empiric antibiotics till culture reports are available is appropriate. If CSF is required, based on elevated inflammatory markers, evaluation for enterovirus is advised. In India, testing for malaria may also be appropriate in many parts of the country. (Pediatrics August, 2021)

Opening schools safely in COVID-times

A lot of discussion is going on in the media regarding the impending third wave of coronavirus disease-19 (COVID-19), and the status of children during it. Reopening of schools is getting delayed meanwhile, thereby affecting the children’s studies and social interactions. This study analyzed incidental infection data from a reopened private school located in a high prevalence area in Brooklyn, NY and corresponding local and regional community-based testing data (September, 2020 to April, 2021).

For safety purposes, the local health authorities had set up a program for weekly COVID-19 screening in all schools to monitor infection rates. Prevalence data were compared from testing done in school to community prevalence estimates determined from statistical models. SARS-CoV-2 prevalence in schools was lower than prevalence in the corresponding local or general community for all months.

The study, school might not be representative of other schools in different areas, and also school-specific strict COVID-19 protocols and guidelines in this school might have contributed to preventing further cases. Moreover, the student density and safety protocols in Indian schools may also vary from those in the reported school. As there are conflicting guidelines in various states for school reopening, we need robust multi-centric studies to look at the risks involved with school reopening, and take an informed decision regarding this important issue. (Acta Paediatrica June 23, 2021)

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