

IMPACT OF SYNDROMIC RESEARCH BY PCR MULTIPLEX IN PATIENTS WITH ACUTE RESPIRATORY INFECTIONS

AUTHORS: CAVALCANTE, K.F.¹; MELLO, L.P.¹; AZEVEDO, M.G.L.¹; VIANA, V.A.F.¹; MÁXIMO, A.C.B.M.¹; FREITAS, T.M.³; ARRUDA, D. M. M.^{1,2}; STOLP, A.M.V.^{1,2}

INSTITUTIONS:

1.Laboratório Central de Saúde Pública - LACEN-CE (Av. Barão de Studart 2405, Dionísio Torres. Fortaleza-Ce. Brazil. CEP: 60.120-002);

2.. Universidade de Fortaleza – UNIFOR (Av. Washington Soares, 1321. Edson Queiroz. Fortaleza-Ce. Brazil. CEP: 60811-905);

3.Secretária da Saúde do Ceará - Education Incentive Program (Rua Almirante Barroso, 600, CEP: 60060-440). Fortaleza-Ce. Brazil).

Upper respiratory tract infections present a high morbimortality rate with a worldwide distribution and diversity of agents in the acute processes, often as mixed infections. In chronic conditions, they can aggravate pathologies. Since the influenza A H1N1 pandemic in 2009, the notification and follow-up of cases of patients with severe acute respiratory syndrome has intensified. A rapid etiological diagnosis is necessary to allow an adequate and early therapeutic strategy. The aim of the study was to detect the agents involved in acute respiratory infections, correlating antimicrobial use with SARS (Severe Acute Respiratory Syndrome) and pertussis in the period from October 2018 to May 2019, through a retrospective study of the nasopharyngeal swab samples sent to LACEN-CE with a request for a syndromic approach by the Filmarray® Multiplex PCR system, which allows the simultaneous testing in a single hour of the analytical phase of 20 pathogens including three bacteria and 17 viruses in the respiratory panel. A total of 70 nasopharyngeal swab samples were analyzed, of which 74.29% (52) were detectable. Among the 52 confirmed cases and including coinfections, 7.69% (4) were *Bordetella pertussis*, 1.92% (1) *Mycoplasma pneumoniae* and 1.92% (1) *Chlamydia pneumoniae*. From viral origin, 28.8%(15) were Rhinovirus, 13.5%(7) Adenovirus, 5.77%(3) Coronavirus HKU1, 3.85%(2) Coronavirus OC43, 15.4%(8) Respiratory Syncytial virus, 9.62%(5) Influenza B, 11.5%(6) Influenza AH3, 9.62%(5) Influenza A H1N1 (pdm09), 7.69%(4) Metapneumovirus, 1,92%(1) Parainfluenza 1, 3.85%(2) Parainfluenza 3, 1.92%(1) Parainfluenza 4. Of the 52 confirmed cases, 19.2%(10) showed coinfection by 2 pathogens and 1.92%(1) showed coinfection by three pathogens. With in the amount of 70 cases investigated, 12.9%(9) were reported for pertussis, with 100% being in antibacterial use, but with molecular confirmation of only 7.69%(4). (41,4%)29 were able to interrupt therapy for influenza virus. The addition of a rapid multiplex PCR with syndromic approach in the diagnostic routine of acute respiratory infections has allowed a significant increase in the detection of the etiological agents, positively impacting the prognosis of the patient through immediate interventions and re-adjustment of the empirical therapy, resulting in a better clinical outcome, dehospitalization, reduction of isolation time and consequently costs, but mainly contributing to patient safety with reduction of morbimortality.

Keywords: Acute respiratory tract infection, Pertussis, Viral infections, Syndromic diagnosis, Rapid multiplex PCR.

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