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Evaluation of the detection of specific IgM against measles virus by the chemiluminescence immunoassay Liaison® Measles IgM☆

Evaluación de la detección de IgM específica frente a sarampión mediante el ensayo de inmunoquimioluminiscencia (CLIA) Liaison® Measles IgM

The Measles Surveillance Protocol[1] establishes that suspicions must be studied by means of confirmation tests for case classification. The results must be available, if possible, within 24 h.[1] According to the WHO, the reference method is the detection of specific IgM. However, molecular diagnosis is becoming increasingly important.[2] In Spain, different serological methods have been used.[3] In this study, the performance of the LIAISON® Measles IgM chemiluminescence immunoassay (CLIA) (DiaSorin, Saluggia, Italy) technique was evaluated against the Enzygnost®Anti-Measles Virus IgM ELISA method (Siemens Healthcare Diagnostics, Marburg, Germany).

Fifty (50) serum samples were studied for the detection of IgM against measles virus by CLIA. These samples corresponded to confirmed cases of measles (n = 20) or mumps (n = 30) and were selected based on previous IgM results for either of these viruses by Enzygnost® Anti-Measles Virus (IgM) or Enzygnost® Anti-Mumps Virus (IgM) ELISA methods. For 17 of these suspected measles samples, RT-PCR data were available[4,5] in pharyngeal exudate samples for detection of measles virus RNA, and in 29 of these suspected mumps samples, RT-PCR results[6] in saliva were available for detection of mumps virus RNA.

The distribution of results by CLIA compared to those obtained by ELISA is shown in Table 1. In 19 of the 20 cases in which the detection of IgM against measles virus had been positive by ELISA, the CLIA results were also positive (95.0% sensitivity; 95% CI 75.1–99.9). These data were supported by the fact that RT-PCR results for measles virus were available in 16 paired pharyngeal exudate samples, and virus RNA was identified in all of them. The case that was measles IgM negative by CLIA and positive by ELISA corresponded to a patient in whom the RT-PCR in the pharyngeal exudate had also been positive for the virus. This patient was a 52-year-old adult who had been vaccinated 14 days prior to rash onset and sample collection (obtained on the first day of rash) and who also had a negative IgG result by ELISA (Enzygnost® Measles IgG). The IgM against measles result obtained with CLIA was negative in the 30 cases with a prior positive IgM against mumps result by ELISA (100% specificity; 95% CI 88.4–100). This specificity was supported by the fact that in 28 of the 30 CLIA-measles IgM negative cases, there were RT-PCR results in saliva for mumps virus, and in 24 (85.7%) of them, virus RNA was detected.

The results of this study suggest good levels of sensitivity and specificity for LIAISON® Measles for the detection of measles IgM. In previous studies, the detection of measles IgM using this assay has also shown excellent levels of diagnostic performance (sensitivity of 92–98.8% and specificity of 96.6–100%[7–10]). One of the limitations of this study lies in the small number of samples included. Another is that the control group to establish the level of specificity did not refer to samples confirmed as measles IgM negative, but to mumps IgM positive samples. However, this fact could represent a guarantee of no IgM cross-reactivity between both paramyxoviruses. In the only measles IgM negative case by CLIA, but positive by ELISA, and vaccinated two weeks prior, obtaining the sample very early could have favoured the appearance of this result. In recently immunised patients, cases may arise, with mild clinical manifestations, associated with weak or negative IgM serological responses.

In conclusion, these results support the usefulness of LIAISON® Measles for the detection of measles IgM. Among the potential advantages of this technique, it is worth mentioning the minimal handling of sera, its high level of automation and ease of use, as well as random and continuous access to samples. These characteristics

Table 1
Measles IgM results by LIAISON® Measles assay in serum samples corresponding to patients with clinical suspicion of measles or mumps and previously processed with Enzygnost® Measles or Enzygnost® Mumps.

	Enzygnost® Measles IgM+	Enzygnost® Mumps IgM+	Total
LIAISON® Measles IgM+	19[a]	0	19
LIAISON® Measles IgM−	1[b]	30[c]	31
Total	20	30	50

Sensitivity of CLIA compared to ELISA of 95.0% (95% CI 75.1–99.9). Specificity of CLIA compared to ELISA of 100% (95% CI 88.4–100).

[a] Of the 19 measles IgM LIAISON® IgM+ and Enzygnost® IgM+ cases, 16 had undergone measles PCR and all were positive.

[b] The measles IgM LIAISON® IgM− and Enzygnost® IgM+ case was a 50-year-old adult with a positive PCR result for measles who had been vaccinated 14 days before the onset of the rash and the sampling.

[c] Of the 30 measles LIAISON® IgM− and mumps Enzygnost IgM+ cases, 28 had undergone PCR for mumps, and 24 of them were positive and 4 negative.

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are especially attractive for the urgent processing of samples, which in most cases are sporadic, and for which laboratory results must be promptly provided.

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Detection and semiquantification of pneumothorax through lung ultrasound: case report of a COVID-19 patient☆

Detección y semicuantificación de neumotórax mediante ecografía pulmonar: a propósito de un caso de COVID-19

Pneumothorax is a common condition that is easy to diagnose by ultrasound. The sensitivity of this technique is greater than that of plain radiography, which is commonly used for diagnosis. In addition, ultrasound allows the pneumothorax to be semi-quantified, facilitating assessment of those that are and are not amenable to drainage. Increased sensitivity and speed are sufficient reasons to use ultrasound to diagnose this condition, improving the prognosis of these patients.

We present the case of a 27-year-old obese man (BMI 33), with no other medical history of interest, who was admitted for bilateral pneumonia secondary to COVID-19 infection, on the eighth day after the onset of his symptoms. Twenty-four hours after admission, he exhibited respiratory progression, developing Acut respiratory distress syndrome (ARDS), diagnosed by chest X-ray. The patient was undergoing thromboprophylaxis (enoxaparin 60 mg daily) and at that time anti-inflammatory treatment was started with tocilizumab and dexamethasone boluses at 20 mg daily, in addition to increasing oxygen requirements with a reservoir at 15 L/min. Subsequently, the patient's clinical course was favourable, gradually reducing the oxygen but without achieving its complete withdrawal. As the patient improved further, in the third week from the onset of his symptoms, he experienced an episode of chest pain. The pain was sharp, increased with coughing and was located on the left side. It did not change with body positions. Regarding laboratory tests, acute phase reactants continued to decrease, while D-dimer levels of less than 500 ng/mL were of note. An electrocardiogram was conducted,

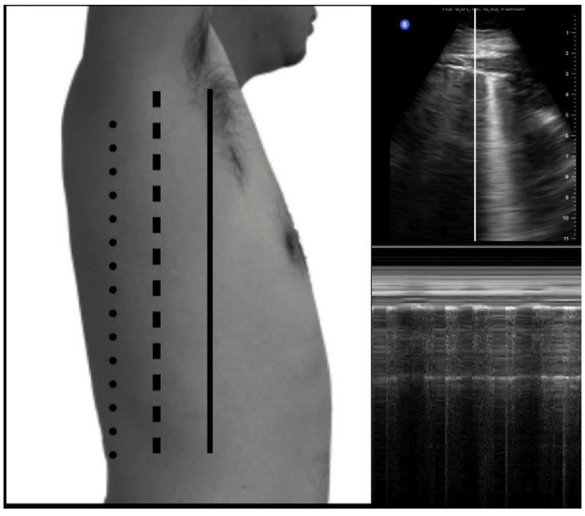

Figure 1. (A) Anterior axillary line (AAL; continuous black line), midaxillary line (MAL; dashed black line) and posterior axillary line (PAL; dotted line). (B) Representation of the placement of the M-mode line. (C) Graphic representation of the M-mode; an alternating grainy pattern (asterisk) and stratosphere sign can be seen. If the lung point is found anterior to the AAL, it would be suggestive of mild pneumothorax <10%; if the lung point is found on the MAL, it would be suggestive of pneumothorax between 11–30%; if it is posterior to the PAL, it would be suggestive of pneumothorax >30%.

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