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Evaluation of real-time PCR for HSV-VZV on various samples in the condition of a clinical virology laboratory

INTRODUCTION

Investigations for HSV-1, HSV-2 and VZV are justified by the frequency of these viral infections, their potential severity, and the availability of specific and effective anti-viral treatments.

Sensitive and fast real-time PCR techniques targeted to these viruses are now available. Our aim was to retrospectively evaluate a real-time PCR kit, *HSV-1 HSV-2 VZV R-Gene* on various samples in the usual conditions of a clinical virology laboratory.

METHODS

106 samples of patients hospitalized in Strasbourg university hospital were studied by routine assays, cellular cultures or PCR, and the results later compared to those obtained by the real-time PCR kit (*Argene*)/ *HSV-1 HSV-2 VZV R-Gene*. 23 gynaecological swabs, 27 cutaneous and mucosal swabs, 8 samples from ear, nose, throat or eyes, 25 cerebrospinal (CSF) fluids, 23 broncho-alveolar or other samples were tested.

RESULTS

QUALITATIVE data

The data were globally concordant : for the 20 positive results of culture from gynaecological swabs, 9 HSV-1 and 9 HSV-2 were detected with the kit (*Argene*), while the 2 others were not confirmed, probably due to storage several months at –20°C. The 26 positive cutaneous and mucosal swabs were confirmed (11 HSV-1, 4 HSV-2, 11 VZV), as were the 6 positive from ear, nose, throat or eyes (6 HSV-1). For the CSF, 3 positive samples (*PCR consensus, Argene*) were confirmed (1 HSV-1, 2 VZV); an additional strain, i.e. VZV, was detected with the new kit in the 4th CSF. The other 21 negative CSFs were confirmed. For the broncho-alveolar and other liquids, 11 positive results were concordant (9 HSV-1, 2 VZV), 2 samples which were expected positive were not confirmed, and 10 negative samples were verified.

Samples	POSITIVE *expected*	NEGATIVE *expected*
Gynaecological swabs	18 / 20*	3 / 3
Cutaneous and mucosal swabs	26 / 26	1 / 1
Samples from ear, nose, throat or eyes	6 sur 6	2 / 2
CSF	3 / 3	21 / 22**
LBA et autres liquides	11 sur 13***	10 sur 10

Figure 1 :
* the 2 discordant samples positive by cellular culture and stored several months at -20°C; **1 positive by real-time PCR was not detected by "consensus" PCR; ***1 was weak positive, probably altered during conservation; the second was positive after re-testing

RESULTS- *continued*

QUANTITATIVE data

The samples positive on Lightcycler equipment were evaluated by RotorGene. The correlation was good (0,95 for HSV1, 0,98 for HSV2, 0,99 for VZV).

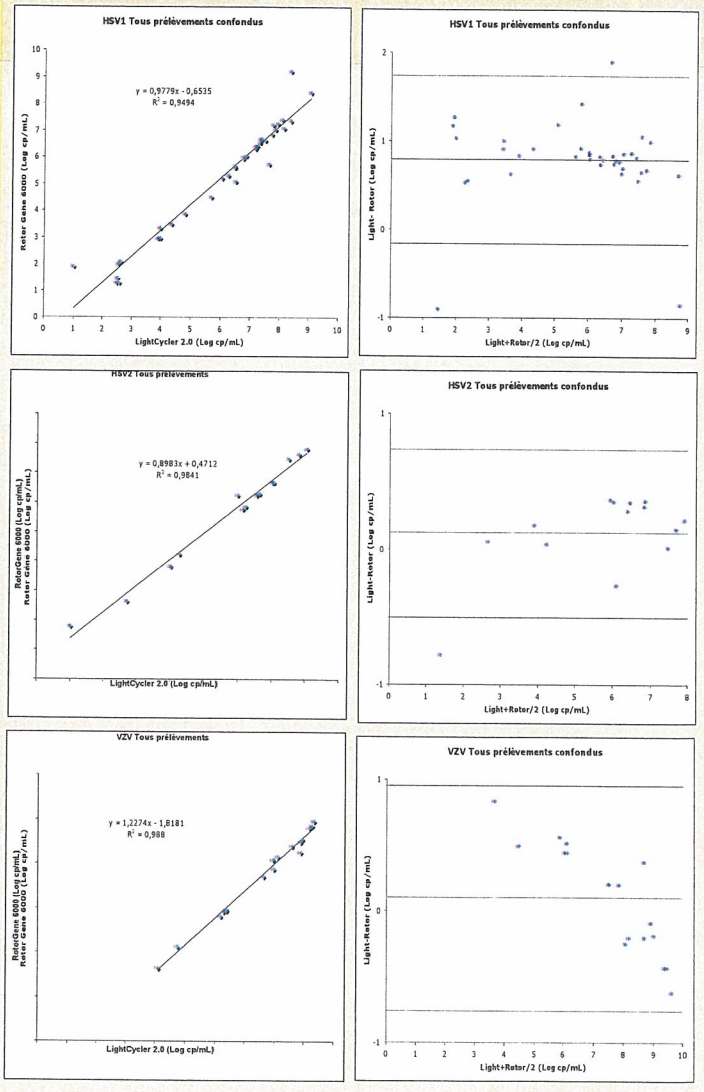

Figure 2 :
Comparison of quantitative data obtained by the real-time PCR kit on Lighcycler 2.0 (Roche) and RotorGene (Corbett) equipments

Conclusion

The real-time PCR kit evaluated on various samples has given concordant qualitative results in 95% of the cases when compared to culture and conventional PCRs.

This technique will reduce the delay necessary to transmit results to physicians, and will add quantitative data for physicians.