

## Factors associated with in-hospital delays in treating acute stroke with intravenous thrombolysis in a tertiary centre. Reply to a letter<sup>☆</sup>



### Identificación de los factores que influyen en el retraso intrahospitalario del inicio de trombólisis intravenosa en el ictus agudo en un hospital terciario. Contestación a réplica

Dear Editor,

We would like to thank Dr Maestre-Moreno for his comments (The 'three-hour effect' constitutes procrastination in thrombolytic stroke treatment) in response to our study 'Factors associated with in-hospital delays in treating acute stroke with intravenous thrombolysis in a tertiary centre'.<sup>1</sup>

We agree that the term 'end-of-window effect' is more appropriate than the one we use in our study ('3-hour effect') to refer to the inverse correlation between onset-to-door time and door-to-needle time.<sup>1-3</sup> 'Procrastination', the term proposed by Maestre-Moreno et al.<sup>4</sup> in 2005, may also be appropriate to explain this correlation, although this phenomenon is perhaps more complex than the mere postponement of an action. As the authors so rightly point out, many factors may contribute to this effect.

In our experience, the end-of-window effect is linked to the urgency perceived by the neurologist. Patients reaching hospitals more quickly dispose of more time to receive intravenous thrombolysis, which results a slower pace of treatment. Continuous review of in-hospital management times, better adherence to treatment guidelines, and a good level of motivation displayed by the on-call neurology team are crucial for reducing delays. The results of our study led us to develop an action plan to reduce in-hospital management times by implementing several measures, including the ones mentioned above, to eliminate the end-of-window effect. This action plan has achieved positive results: the end-of-window effect has disappeared and CT-to-needle time and in-hospital management times have decreased overall.

Similar results have been reported by other authors, as shown in the 2007 article by Maestre-Moreno et al.<sup>5</sup>

We fully agree that quicker is better and might go so far as to state that 'the sooner the better, and if well managed, better still'; implementing in-hospital action protocols is

essential to achieving this aim. We hope that other centres will soon join us in this initiative.

### Conflicts of interest

The authors have no conflicts of interest to declare.

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