

# A second look on intramuscular diazepam for psychiatric emergencies

Uma reavaliação do diazepam intramuscular para emergências psiquiátricas

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Even if oral medications are preferred whenever their use is possible, intramuscular application (IM) of psychotropics is frequently needed in psychiatric emergencies. Benzodiazepine use has been recommended in recent guidelines as they have a lower incidence of side-effects, especially extrapyramidal symptoms, when compared with typical antipsychotics<sup>1</sup>.

Lorazepam has been the preferred benzodiazepine because of its reliable absorption; its parenteral formulation, however, is unavailable in Brazil. This probably explains the addition of promethazine, a sedative antihistamine, to haloperidol in our emergency rooms<sup>2</sup>. This combination has the virtue of having been tested in several high quality randomized trials, with hundreds of patients exposed<sup>3</sup>. The haloperidol-promethazine mix, however, has not been tested against the combination of an antipsychotic and benzodiazepine, which is standard practice, at least in countries where parenteral lorazepam is available<sup>4</sup>.

Intramuscular use of diazepam has been little explored in clinical research; this is probably related to pharmacokinetic difficulties related to its gluteal IM administration. Although the absorption of certain drugs following IM injection can be erratic leading to unpredictable clinical response, muscle is more vascular than subcutaneous tissue, with absorption occurring more rapidly after deltoid administration and more slowly after gluteal injections<sup>4</sup>. In two trials in which IM use of diazepam was examined, it was as effective as lorazepam for anxiety<sup>5</sup> and as sedation before electroconvulsive therapy in chronically psychotic patients<sup>6</sup>.

A number of studies have demonstrated that deltoid application renders the absorption of diazepam more reliable. In one randomized, cross-over, study, absorption after deltoid injection of diazepam was rapid and complete<sup>7</sup>. In another experiment on healthy subjects,

absorption was more rapid, having a greater clinical effect after shoulder than after thigh administration<sup>8</sup>.

Having those pharmacokinetic data at hand, a point can be made that deltoid administration of diazepam in addition to haloperidol could be tested in clinical trial against haloperidol and promethazine. Among benzodiazepines available in Brazil, diazepam has clear advantages over midazolam, as it is approximately 15 times cheaper and widely available for the treatment of seizures in emergency services. If deltoid administration of diazepam is demonstrated to be effective in psychiatric emergencies, patients should benefit from having another useful option for the treatment of agitation..

## References

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