Hereditary Angioedema Prophylaxis With Plasma Kallikrein Inhibitors: Role of Target Binding Kinetics, Pharmacokinetics, and Treatment Adherence

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Rationale
Hereditary angioedema (HAE) is a rare inherited disorder characterized by recurrent episodes of severe swelling of the skin and mucous membranes. Unopposed contact system activation leads to excess plasma kallikrein (PKa) activity and, subsequently, increased bradykinin, a key mediator of HAE attacks.

Methods
A mechanistic biological model of HAE was developed using QSP that incorporated critical components of the contact system and a virtual HAE patient (Figure 1).

Results
Model development

- Model validation
- Results

Model application

- Model predictions
- Results

Impact of treatment nonadherence in patients

- Model predictions
- Results

Model qualification

- Results

Conclusions

- Model application
- Results

References