

## EDITORIAL

## USE OF NOACS IN EXTREMES OF BODY WEIGHT

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Certain physiological phenomena in our body lead to severe changes in body weight leading to obesity. If needed, currently, there is no specific regimen for using novel oral anticoagulants (NOACs) in obese patients. It has been found that fixed doses of NOACs bring out more drug exposure to lower BMI patients, whereas it brings out lesser blood drug levels in patients with higher BMI.<sup>1</sup>

When researchers evaluated NOACs in patients with atrial fibrillation (AF) or venous thromboembolism (VTE), most randomized trials did not exclude body weight from the studies. Hence, the subgroup analysis of these trials showed no considerable difference in outcomes in obese patients.<sup>2</sup> The International Society on Thrombosis and Haemostasis showed that NOACs are safer in patients with a body weight of  $\leq 120$  kg (BMI  $\leq 40$  kg/m<sup>2</sup>) at the usual dose as compared to patients with a body weight of  $>120$  kg (BMI  $>40$  kg/m<sup>2</sup>).<sup>2</sup>

Several retrospective studies have shown suboptimal plasma concentrations (in 20%-28% of obese patients studied) with dabigatran and rivaroxaban compared to apixaban.<sup>3</sup> Dose reduction is recommended for apixaban if body weight is  $\leq 60$  kg (in addition to age and renal function). Reduction in the dose of edoxaban is recommended due to the pharmacokinetic property of high systemic exposure in low body weight patients.<sup>4</sup>

For patients with body weight  $> 120$  kg or BMI  $> 40$  kg/m<sup>2</sup>, it is suggested to use rivaroxaban and apixaban, while dabigatran, edoxaban, and betrixaban should be avoided.<sup>5</sup>

For patients with a body weight  $<60$  kg, renal function should be assessed before adjusting the dose of NOACs. These patients overestimate renal function due to lower body muscle mass. Old age and frailty should also be considered, as these factors are related to bad outcomes in patients with low body weight.<sup>6</sup> It is suggested to use apixaban (after taking a renal impairment and age into consideration) and edoxaban with caution in low-body weight patients.<sup>7</sup> Dabigatran

serves as a less-than-ideal drug for low-body weight patients due to high systemic exposure. No conclusive data is available for rivaroxaban.<sup>8</sup>

Due to a lack of clinical interest in this population subset of extreme body weight changes, we need more data, which leads to the need for more extensive work in this domain, revealing clear answers in the future.

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