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Reply: Beyond frame expansion: interpreting the implications of routine post-dilatation

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We thank Sturla et al[1] for their insight on our manuscript "Routine post-dilatation at nominal volume to optimise the expansion of balloon-expandable valves: the DOUBLE-TAP study"[2,3]. We do agree with the authors, that at this time, we do not know whether the improvement in stent frame expansion with the double-tap technique will translate into superior haemodynamics or longer transcatheter heart valve (THV) durability. However, it must be noted that, with current guidelines recommending transcatheter aortic valve implantation in patients as young as 65 years, very long-term durability will be needed, and it remains unclear whether this small increase in expansion might be beneficial. Indeed, our study showed that the double-tap technique was associated with reduced leaflet pinwheeling, which, along with a reduction in turbulent flow, might reduce the risk of hypoattenuated leaflet thickening (HALT) and contribute to valve durability[4]. This is supported by recent data showing that THV asymmetry was associated with an increase in the HALT rate[5].

In this context, the double-tap strategy may be most appealing in patients who are more likely to be adversely affected by THV underexpansion; these include younger patients with longer life expectancies, those with a small aortic annulus, those in whom paravalvular regurgitation is evident, and those in whom asymmetrical THV expansion is visible on fluoroscopy.

It seems reasonable to avoid a routine double-tap strategy in patients with "high-risk" annuli (as suggested by particularly heavy annular or subannular calcifications), in patients where the THV is much larger than the annulus, or when a THV is implanted so far above the annular plane that redilatation might result in embolisation. However, in the absence of any signal indicating an increased risk of procedural adverse events in patients without these specific concerns, a double-tap strategy may be reasonable in routine clinical practice.

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Conflict of interest statement

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