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Persistent aggregates at the valve sinus are different from sludge or thrombus. A pilot study on HR ultrasound findings.

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Background: Using novel high resolution ultrasound systems (HRU), valvular structures and low-flow microaggregates may be depicted today in a more detailed way. This study examines the appearance of temporary and permanent blood particle aggregations.

Methods: 60 patients (41 f, 19 m; 32 - 58 yr/o.), representing 3 groups of professions with > 6 hours of daily sitting (n=20), > 6 hours of daily standing (n=20) and cases with less than 2 h of sitting or standing during work were included. All underwent HRU (8 – 16 MHz, peak up to 40 MHz, Vevo MD). A total of 120 well depictable GSV vein valves, all without reflux, were selected for this study. Two subgroups were examined for changes of persistent microaggregates during 3 months of newly started wearing of compression stockings, or flavonoid medication (Daflon 500).

Results: Persistent microaggregates (PMA) were found in 47/120 "healthy" vein valves (39.1%). They were much more frequent in valves of subjects with sitting or standing professions (73/80; 91.3%, versus 10/20, 50.0%). In the subgroup receiving compression stockings, 21/26 of examined valves showed reduction of PMA (80.8%), in the subgroup receiving flavonoid medication 9/13 (69.2%).

Conclusions: Persistent blood cell aggregates at the valve sinus seem to be associated with lifestyles including long periods with decreased or stagnant flow. The criterion of PMA may be used in future for the evaluation of benefits of compression device, physical activity or medication. The study will be continued, adding histology and cytology.