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Title: Is nailfold videocapillaroscopy a valuable diagnostic tool in pulmonary hypertension?

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Body: Background: Pulmonary hypertension (PH) can be based on idiopathic pulmonary arterial hypertension (iPAH), connective tissue diseases such as systemic sclerosis (SSc-PAH), left heart disease (LHD-PH), chronic obstructive pulmonary disease (COPD-PH), or chronic thromboembolic events (CTEPH). Objectives: Analysis of microvascular patterns of patients with PH has been performed using nailfold videocapillaroscopy (NVC). The benefit of NVC in PH was evaluated with focus on SSc patients. Methods: NVC was performed in 81 patients. 2nd-5th fingers were bilaterally analyzed. Pictures were scored for capillary density (CD, capillaries/mm), and dimensions. Parameters such as hemorrhages and neoangiogenesis or capillary alterations such as ectasia (>20µm) and giant shape (>50µm) were qualitatively assessed. Results: 14.8% had iPAH, 14.8% LHD-PH, 7.4% COPD-PH and 17.2% CTEPH. 45.7% had SSc and 12.3% SSc-PAH. The CD in SSc-PAH was significantly lower compared to all other PH forms (4.9 vs. 10.2, 10.0, 11.7 and 9.47 in iPAH, LHD-PH, COPD-PH and CTEPH; p<0.0001), but did not differ compared to SSc non-PAH (4.7; p=0.73). In general, capillary dimensions were larger in SSc-PAH (p<0.0001). Ectasias were very common in SSc-PAH (90%), but to some extent present in other forms (e.g. COPD-PH 71.4%). Giant capillaries were only present in SSc (84.6% and 70%). Hemorrhages occurred in all disease forms of this study, mostly in COPD-PH (85.7%) and SSc (80%). Conclusions: Assessing capillary density in PH is a powerful tool to discriminate between SSc-PAH and other forms of PH. In this respect, NVC should be considered, besides checking for antinuclear antibodies, if the underlying cause of PH is unclear to determine SSc-PAH.