Impact of COVID-19 on angioplasty service and outcome of patients treated for critical limb ischaemia

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Background: Peripheral artery disease (PAD) is a major challenge worldwide and endovascular revascularization is an important component of treatment that is affected by COVID-19 restrictions.

Purpose: Here, we evaluated the impact of COVID-19 restriction on angioplasty service and outcome of patients undergoing lower limb angioplasty.

Methods: Consecutive patients undergoing endovascular revascularisation between August 2018-March 2021 in a UK district general hospital were analysed retrospectively. Indications for angioplasty of all patients were discussed and agreed upon in multi-disciplinary teams. We compared time from referral to angioplasty, patient and procedural characteristics, technical success, peri-procedural complications, and outcome (wound healing, major amputation, target lesion revascularization, death) in patients treated 'before' and after February 2020 ("during COVID-19").

Results: One hundred nineteen patients were treated 'before' (92% critical limb ischaemia [CLI]; 60% diabetes mellitus) and 72 were treated 'during COVID-19' (96% CLI; 61% diabetes mellitus). While the total monthly number of patients treated did not change, the number of outpatients treated as day cases increased (40% to 72%) and overnight stays for social reasons decreased (16% to 10%). Treatment of hospitalized patients decreased from 44% to 18%. The percentage of outpatients treated at $<$14 days after referral increased from 39% to 63% and hospitalized patients treated $<$5 days from 47% to 54%. Neither COVID-19 nor time to procedure affected wound healing (p(log Rank) = 0.451; median time to healing 168±25 days) and amputation free survival (p(log Rank) = 0.924; median survival 368±30 days) in all CLI patients significantly. However, amputation-free survival was significantly worse in hospitalized as compared to outpatients (p(log Rank) $<$0.001; median survival 155±20 vs 368±30 days) with similar wound healing in those that survived (p(log Rank) = 0.340; median time to wound healing 168±25 days). Of note, the known causes of death were sepsis (32%), pneumonia (18%), COVID pneumonia (18%), cardiac (16%) and stroke (8%).

Conclusions: Adapting to COVID-19 restriction we maintained a safe and effective angioplasty service while shortening waiting times. Very high mortality rates in patients after hospitalization indicated that CLI need to be treated much earlier and more aggressively to avoid disease progression requiring hospitalization.