

Iloprost infusion through elastomeric pump for the out patient treatment of severe Raynaud's phenomenon and digital ulcers – a single centre experience

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Dear Editor,

Vasculopathy is crucial in the pathogenesis of several systemic rheumatic diseases, with Raynaud's phenomenon (RP) and digital ulcers (DU) being the clinical manifestations that best illustrate it.

European League Against Rheumatism recommends the use of intravenous iloprost for the treatment of systemic sclerosis (SSc) related digital vasculopathy, as it reduces the frequency and severity of SSc-RP attacks and heals active DU¹.

The standard treatment protocol consists of intravenous infusion of iloprost at a rate of 0.5–2 ng/kg/min for 3–5 consecutive days, through a peripheral venous access. Due to common side effects (hypotension, flushing, nausea and headaches) patients used to be admitted into hospital for treatment administration. However, this has an important economic impact, not only due to the direct costs of hospitalisation, but also for the “price” of absenteeism.

Portable devices for iloprost infusion have been recently designed, allowing outpatient treatment. The drug is kept in an elastomeric pump that does not change the physical-chemical properties and enables a constant and continuous release of iloprost². The device has demonstrated to be safe, feasible and effective^{3–6}, with higher patients' satisfaction and consequently greater treatment adherence⁴.

Since 2015, 12 patients followed in our rheumatology department have received intravenous iloprost treatment on an outpatient basis, with a total of 25 infusions. The underlying connective tissue disease, the concomitant vasodilator therapies and the number of infusions per patient are described in Table I.

All patients admitted at our day-hospital unit for iloprost infusion are previously evaluated by a clinician, who decides the eligibility for this treatment. In the first

day of treatment patients are taught about the procedure, the care that has to be taken with the catheter and infusion device and the warning signs that should make the patient to promptly look for medical care.

The preparation of the drug in an elastomeric pump is carried out with an aseptic technique, by diluting 250 micrograms of iloprost in 237,5 mL of saline. Afterwards the pump is connected to a peripheral catheter, which should be placed in a medium-sized vein, ideally in the forearm; tortuous vessels and veins located in areas where the catheter can be easily bended should be avoided. The pump must be carried in a pouch around the patients' neck so that it is higher than the venous access, to avoid perfusion problems.

The treatment is kept for 5 consecutive days, during which the healthcare team, including the specialist nurse, is easily reachable by phone. At the 5th day of treatment the patient can either attend our day-hospital unit or his primary care centre to remove the peripheral access.

The treatment was generally very well tolerated, without any patient reporting nausea, headache, or hypotension. One patient who did not tolerate iloprost perfusion, tolerated it through elastomeric pump. Difficulty in keeping the peripheral catheter was reported by one patient with limited cutaneous SSc during the first infusion, but improved in the following administrations. In 4 of the 25 infusions there was still a small amount of iloprost left in the pump at the last day of treatment, although this did not seem to compromise the efficacy.

All patients clinically improved, with reduction of digital pain associated with ischaemia and healing of DU (including ulcers with evidence of critical ischaemia).

Iloprost domiciliary infusion through elastomeric pump is safe, effective and easily handled by patients, who can remain at home and keep their daily activi-

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TABLE I. SUMMARY INFORMATION OF PATIENTS TREATED WITH DOMICILIARY INTRAVENOUS ILOPROST

Gender	Age (years)	Connective tissue disease	Concomitant therapies	Infusions
Female	53	MCTD	nifedipine, transdermal isosorbide mononitrate, sildenafil	6
Female	62	Limited cutaneous SSc	nifedipine, transdermal isosorbide mononitrate	1
Female	70	Limited cutaneous SSc	nifedipine, transdermal isosorbide mononitrate, bosentan, sildenafil	4
Female	77	Limited cutaneous SSc	nifedipine	1
Female	56	Limited cutaneous SSc	nifedipine, bosentan	2
Female	56	Diffuse cutaneous SSc	nifedipine	2
Female	67 (†)	Diffuse cutaneous SSc	amlodipine, bosentan	1
Female	44	Diffuse cutaneous SSc	nifedipine, transdermal isosorbide mononitrate, bosentan	1
Female	40	SSc overlap myositis	nifedipine	2
Female	42	Buerger's disease	nifedipine	2
Male	36	MCTD	nifedipine	1
Male	80	Limited cutaneous SSc	nifedipine	2

MCTD: mixed connective tissue disease; SSc: systemic sclerosis

ties. Our data reinforce the feasibility of iloprost treatment administration in home care and this approach could be implemented in other centres as a first-choice for iloprost intravenous infusion.

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