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Intracavernosal injections in the diagnosis and treatment of PDE–5 resistant erectile dysfunction

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Duplex Doppler study after intracavernosal injection (ICI) of vasoactive drugs is a valuable tool in the evaluation of vascular status in patients suffering from erectile dysfunction [1]. Normal erection after ICI suggests sufficient venous occlusion. Persistent diastolic cavernous blood flow measured by end–diastolic velocity (EDV) despite adequate arterial inflow measured by peak systolic velocity (PSV) suggests insufficient veno–occlusive mechanism which results in venous leakage [1]. EDV >5 cm/s and resistive index (RI) less than 0.75 have been universally accepted as pathologic reflecting venous outflow, though controversies exist about normal values of PSV. EAU recommends considering PSV of >30 cm/s, EDV <3 cm/s and RI >0.8 as normal while some authors consider PSV values between 25 and 35 and EDV between 5 and 7 cm/s as grey zone [1, 2, 3].

Duplex Doppler studies have some limitations. The tests may be false negative in up to 20% with borderline arterial inflow (25–35 cm/s) [1]. Repeated duplex Doppler examinations revealed normal vascular status in a significant number of patients [4]. Moreover, several studies showed that EDV and RI in patients with repeated unsatisfactory reactions to intracavernous prostaglandin injection are poor predictors of venous leakage and should not replace dynamic pharmacocavernosometry/cavernosography (DPCC) in the investigation of vasculogenic impotence [5]. Cavernosography definitely has its place in diagnosing cavernosal venous leakage and is considered the gold standard by some authors [3, 4]. False positive results of duplex Doppler studies may be due to e.g. anxiety during the examination, which can resolve with repeated administration out of the office.

The authors [6] present a concept of repeated ICI in patients with erectile dysfunction resistant to oral and intracavernosal therapy and EDV >5 cm/s

on duplex Doppler examination, which suggests that at least part of those men suffered from venous leakage. No pharmacocavernosometry studies were done, which may however reflect common daily practice. Repeated self–administered ICI resulted in symptomatic improvement and reduction in mean EDV and increase in RI, while no significant difference in mean PSV was noted. Those patients who responded to therapy were generally younger and had worse erection quality before start of the study, which may have resulted in bigger potential for improvement and better quality of cavernous tissue. Improvement in EDV was noted in 21 patients and 10 of them reached EDV <5 cm/s which was considered normal. Possible explanation of that finding is discussed in the article. Despite that, only six men with EDV <5 cm/s during duplex Doppler examination after the treatment reported improvement in erectile response after ICI including three who regained spontaneous erections without injections. It would therefore be interesting to look at PSV values in responders and non–responders before and after the treatment, as differences in PSV changes between those groups could reflect existence of mixed vasculogenic pathology and arterial insufficiency component.

Despite those considerations, an idea of repeated self–administered ICI in treatment of men with erectile dysfunction and abnormal EDV during duplex Doppler studies seems to be interesting. Such an approach would be helpful to identify a group of non–responders who should then be referred to angiographic imaging as potential candidates for vascular surgery. Further studies including pharmacocavernosometry/pharmacocavernosography are needed to verify the role of repeated self–administered ICI in the treatment of erectile dysfunction due to cavernosal venous leakage.

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