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Title: First long-term experience with intravenous treprostinil administered by the implantable infusion pump LenusPro. A single-center pilot study

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Body: Introduction Parenteral prostanoids are considered to be the most potent agents in the treatment of pulmonary arterial hypertension (PAH). However, administration of prostanoids with external pump systems is technically challenging and associated with side effects such as infusion site pain with subcutaneous (s.c.) and possibly life-threatening catheter-related infections with intravenous (i.v.) administration. The Lenus Pro implantable infusion pump was specifically developed to overcome the drawbacks of s.c. administration. In 2010, we reported the first implantation of a Lenus Pro pump with a filling interval of 28 days. Results Between September 2010 and October 2011, 14 patients underwent implantation at our center. All patients had previously shown significant clinical response to s.c. Treprostinil but suffered from site pain. Implantations were performed under general anesthesia. After preparation of the pump pocket in the abdominal wall the pump was connected to the central venous access. No intraoperative complications occurred. Postoperatively two patients developed a mild seroma. No other complications especially no infections were observed. Up to now more than 100 refill procedures were performed. Conclusions This first pilot study demonstrates that i.v. Treprostinil, delivered by the implantable pump Lenus Pro® is safe, effective and feasible in PAH patients transitioned from s.c. Treprostinil. Filling intervals of 28 days ensure optimal compliance and long-term patient management. The absence of side effects such as infusion site pain is associated with a dramatic increase in quality of life.