“Few randomized studies have investigated the impact of valved and non-valved power-injectable peripherally inserted central catheters (PICCs) in terms of incidence of occlusion, infection, malfunction and venous thrombosis.” Pittiruti et al (2014).

Reference:


Comparison of three different types of valved and non-valved PICC http://ctt.ec/UDLiy+
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Abstract:

PURPOSE: Few randomized studies have investigated the impact of valved and non-valved power-injectable peripherally inserted central catheters (PICCs) in terms of incidence of occlusion, infection, malfunction and venous thrombosis.

METHODS: We have prospectively compared three types of third-generation polyurethane PICCs. One hundred and eighty adult patients candidate to chemotherapy were randomized into three groups: power-injectable PICCs with Solo-2 proximal valve (Bard); power-injectable
PICCs with PASV (Pressure Activated Safety Valve) proximal valve (Navilyst); and non-valved power-injectable PICCs (Medcomp). All PICCs were single lumen 4Fr, inserted according to a well-defined protocol – maximal barrier precautions, ultrasound guidance, intracavitary electrocardiography (IC-ECG), and so on – and managed according to the recommendations of the most recent guidelines (antisepsis with 2% chlorhexidine, transparent dressing, sutureless device, strict ‘scrub the hub’ policy, neutral displacement needle-free connectors and so on). All catheters were flushed with 10 ml saline before and after each infusion, or with 20 ml saline after blood sampling or infusion of blood products. No heparin was used.

RESULTS: We detected no complications at insertion; no PICC-related bloodstream infections; no dislocations; five cases of transient occlusion and two cases of persistent withdrawal occlusion, evenly distributed among the groups; one episode of complete irreversible obstruction (group A); four episodes of asymptomatic peripheral venous thrombosis; one episode of symptomatic, severe central vein thrombosis (group B). In 31% of PICCs in group A (19/61) and in 65% of group B (39/60), difficulties with gravity infusion were reported; three PICCs of group A were complicated by rupture of the intravascular tract during pump infusion. Five PICCs were removed because of complications, four in group A (one obstruction; three ruptures) and one in group B (central venous thrombosis).

CONCLUSION: We found no clinical advantages of valved vs. non-valved PICCs.

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