

Study of interaction between glue and PICC catheter material

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The long-term use of N-butyl + octyl cyanoacrylate glue on polyurethane PICCs is not expected to be associated to any damage to the catheter” Di Puccio et al (2017).

Abstract:

INTRODUCTION: The use of cyanoacrylate glue as sealant on the exit site of peripherally inserted central catheters (PICCs) may offer some important clinical advantages. However, concerns exist about the potential interaction between cyanoacrylate and the material of the catheter itself. The aim of this study was to investigate the possibility of damage to the catheter secondary to a long-term contact with a two-component skin glue (N-butyl + octyl cyanoacrylate).

METHODS: Twelve PICCs of different brands and types were selected (11 made of polyurethane and one made of silicon). PICCs were glued onto artificial skin pads, slightly wetted with Earle solution. The pads were kept in an egg incubator at 34°C and 60% humidity, for up to twelve weeks. Possible signs of degradation were monitored by surface analyses and mechanical tests. Scanning electron microscopy observations, surface roughness measurements, pressure strength and uniaxial tests were performed.

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RESULTS: Samples were analyzed after 4, 8 and 12 weeks of contact with the glue. No chemical reaction between the glue and the material of the catheters was evident. The mechanical strength of PICCs was consistently within the ranges of ISO standards. An expected increase in the stiffness of the samples covered with glue was observed in uniaxial tests. The silicon catheter was weaker than the polyurethane catheters and was damaged while trying to remove it from the pad for tests.

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CONCLUSIONS: The long-term use of N-butyl + octyl cyanoacrylate glue on polyurethane PICCs is not expected to be associated to any damage to the catheter.

Reference:

Di Puccio, F., Giacomarro, D., Mattei, L., Pittiruti, M. and Scoppettuolo, G. (2017) Experimental study on the chemico-physical interaction between a two-component cyanoacrylate glue and the material of PICCs. *The Journal of Vascular Access*. November 11th. [epub ahead of print].

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