Peripheral intravenous catheters in the care of oncology and haematology patients

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**Purpose:**

Peripheral intravenous catheters (PIVCs) are regularly used to administer intravenous (IV) infusates, including blood, chemotherapy, fluids, and supportive care drugs, in the treatment of cancer. The purpose of this study was to determine peripheral intravenous catheter (PIVC) characteristics, complications and risk factors among patients in cancer units.

**Methods:**

The One Million Global Catheters (OMG) study was an international cross-sectional survey study of PIVC characteristics and use, conducted between June 2014 and July 2015. We conducted a secondary analysis of 127 hospitals in 24 countries. All patients (and PIVCs) admitted to cancer units (oncology and haematology) were eligible for inclusion in the sub-analysis. Participants were assessed once for PIVC characteristics and the presence of complications. Variables included patient demographic (e.g. age, gender), device characteristics (e.g. gauge), treatment details (e.g. infusates); and device and/or site complications (e.g. pain, malfunction). PIVC characteristics were presented using qualitative descriptors; mixed-effects logistic regression models were used to evaluate risk factors associated with PIVC complications.

**Results:**

In total, 1807 participants (n=1812 PIVCs) were included. Signs and symptoms of complications were present in 12% of PIVCs (n=215). The most common symptom of PIVC complication was pain/tenderness at the site of insertion (6%). Modifiable risk factors for complications included: insertion by doctors; insertion in ED and ambulance/other locations; poor PIVC dressing integrity; and dwell time ≥49 hours. Treatment risk factors included administration of colloids/blood products and antiemetics. Factors associated with decreased risk of PIVC complications were male gender and a documented PIVC assessment within the previous 24 hours.

**Conclusions:**

At least one in 10 PIVCs in cancer units present with complications. Regular PIVC assessment and improved dressing integrity is likely to reduce risk and improve outcomes. Routine PIVC audits are strongly encouraged to monitor progress.