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## Role Of Topical Application Of Heparin in Prophylaxis Of Superficial Thrombophlebitis Associated With Peripheral Venous Cannulation

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**BACKGROUND :** Intravenous cannulation has become an indispensable part of hospital based patient management by simplifying the process of giving an intravenous drug therapy for longer durations. Intravenous cannulation for administration of drugs is commonly associated with superficial thrombophlebitis with incidence varying between 25% to 35% at 48 hours post catheterisation. The resultant pain is debilitating and bothersome to the patient. Various methods have been tried for treating established superficial thrombophlebitis. However the role of heparin in prevention of this condition has not been documented so far. Thus we conducted a prospective study to observe the role of topical application of aqueous heparin in preventing or delaying the occurrence of superficial thrombophlebitis and reducing the clinical severity of the disease. **METHODOLOGY :** After institutional review board approval, 30 ASA grade I and II adult male patients posted for elective general surgery were enrolled in this prospective observational study. Aqueous heparin was applied on the skin overlying the insertion site and along the length of the intravenous cannula immediately after the insertion and subsequently every 24 hours at the tip till the cannula was in situ. All the patients enrolled in the study received same medications and IV fluids. The patients in whom repositioning had to be done due to dislodgement or blocking of cannula were subsequently excluded from the study. The skin was inspected every 24 hours for features of superficial thrombophlebitis till the patient were discharged or intravenous cannula was repositioned. The severity was graded according to INS (Infusion Nursing Standards) phlebitis scale. **RESULTS :** In our study, the incidence of superficial thrombophlebitis was 8% at 48 hours and 11% at 72 hours post catheterisation. All the patients with superficial thrombophlebitis had only grade I and grade II severity and none of the patients reported occurrence of grade III and grade IV superficial thrombophlebitis. **CONCLUSION :** Prophylactic topical application of aqueous heparin post cannulation effectively reduces the incidence and severity of superficial thrombophlebitis. Routine pre-emptive application of aqueous heparin may avoid frequent repositioning of intravenous cannula, thereby decreasing the morbidity associated with it i.e. patient discomfort, venous access difficulties and having to resort to more invasive procedures like central venous catheter placement. As aqueous heparin decreases the severity of superficial thrombophlebitis, it may help in reducing the incidence of serious complications associated with prolonged cannulation like suppurative thrombophlebitis, intravascular abscess, bacteraemia and deep vein thrombosis. We recommend pre-emptive local application of heparin in all the patients at intravenous cannulation site, thereby significantly benefitting the patients hospitalised for short duration.

Figure 1

HOURS	NUMBER OF PATIENTS EVALUATED	INFUSION NURSING STANDARDS PHEBITIS SCALE					NUMBER OF PATIENTS DISCHARGED	NUMBER OF CANNULA REPOSITIONED	NUMBER OF PATIENTS ALLOWED ORALLY	NUMBER OF CANNULA BLOCKED
		GRADE 0	GRADE 1	GRADE 2	GRADE 3	GRADE 4				
AT 24 HOURS	30	30					5			
AT 48 HOURS	25	23	1	1			12	3	1	1
AT 72 HOURS	9	8		1			2	1	1	
AT 96 HOURS	5	2	1	2			2	1		
AT 120 HOURS	2			2				2		

