

Invasive device use in a tertiary care hospital in Turkey: a point prevalence study

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Objectives: Invasive devices are often used in intensive care units (ICUs) and increase the incidence of nosocomial infections. The aim of this study is to evaluate invasive device utilization in a tertiary care hospital. **Methods:** This one-day point prevalence study was carried out on November 21, 2012, in all clinics and ICUs of Ankara Training and Research Hospital. All patients having invasive devices including urinary catheter, central venous catheter (CVC) and/or mechanical ventilation were enrolled into the study. Age, sex, clinic, diagnosis, indication of invasive device use, invasive device days, presence of nosocomial infection related to invasive device use, antibiotics and risk factors were recorded. **Results:** At the study day, there were 466 hospitalized patients and 75 (16%) of them had invasive devices. Among these 75 patients 46 (61.3%) were male, the mean age was 62.1 ± 19.7 years. Forty-two patients (56%) were hospitalized in ICUs, 16 (21.3%) in surgery and 17 (22.7%) in medical clinics. Fifty-seven (76%) patients were given one or more antibiotics. Of patients, 47 (62.7%) had one, 28 (37.3%) more than one invasive devices. Totally 69 patients (92%) had urinary catheter, 27 (36%) CVC, and 19 (25.3%) mechanical ventilation. Among intensive care patients 63.6% had invasive devices, in medical and surgical clinics this rate was 10.5% and 6.6%, respectively. The indications of utilization of invasive devices and place of insertion were shown in Table 1. Among 69 patients who had urinary catheter, 27 (39.1%) had urinary tract infection. Mean catheter day was 11.7 days. Drainage bags of urinary catheters were below of the level of bladder in all patients but they were on the floor in 3 patients (4.3%). Among 27 patients who had CVC, 5 (18.5%) had CVC related blood stream infection. Mean CVC day was 23.8 days. Sixteen (53.9%) CVC were placed into the jugular vein, seven (25.9%) into subclavian and four (14.8%) into femoral vein. Among 19 patients who had mechanical ventilation, 7 (36.8%) had ventilator associated pneumonia (VIP). Mean mechanical ventilation day was 9.7 days. All the patient's head were elevated to at least 30° and all had oral decontamination. Steroid therapy was given to five (26.3%) patients, deep venous thrombosis prophylaxis to 16 (84.2%) and proton pump inhibitors to 18 (94.7%). **Conclusions:** Invasive device utilization and invasive device related nosocomial infection rates were found to be high in ICUs in our hospital.

Table 1. The indications of utilization and place of insertion of invasive devices

Causes of utilization of invasive devices			Place of insertion of invasive devices		
	Frequency	Percent		Frequency	Percent
Urinary catheter	(n=69)		Urinary catheter	(n=69)	
Urine volume follow up	54	78.3	ICU	24	34.8
Inability to urinate	9	13.0	Clinic	22	31.9
After urinary operations	6	8.7	Emergency room	19	27.5
			Operating room	4	5.8
Central venous catheter	(n=27)		Central venous catheter	(n=27)	
Fluid/antibiotic therapy	20	74.1	ICU	16	59.3
Hemodialysis	5	18.5	Operating room	5	18.5
Parenteral nutrition	2	7.4	Clinic	3	11.1
			Emergency room	3	11.1
Mechanical ventilation	(n=19)		Mechanical ventilation	(n=19)	
Cardiopulmonary arrest	9	47.4	ICU	16	84.2
Respiratory distress	7	36.8	Operating room	3	15.8
Operation	3	15.8			

ICU: Intensive care unit