

Role of Tele Barrier Nursing in Improvement of Burn Wound Healing

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Telemedicine is being used in many branches of medicine. Telemedicine can be broadly classified into three main categories: store-and-forward, remote patient monitoring and real-time interactive apart from these three categories it is further subdivided in to Emergency telemedicine, Telenursing, Telepharmacy, Telerehabilitation, Teletrauma care, Telecardiology, Teletransmission of ECG, Telepsychiatry, Teleradiology, Telepathology, Teledermatology, Teledentistry, Teleaudiology, Teleophthalmology, tele education and Telesurgery [1]. In our institute we regularly use telemedicine and it is found to be an effective practice. Here we would like to highlight the use of telemedicine in the form of "Tele Barrier Nursing" in improving outcome in burn patients of JIPMER tertiary burn care centre (JTBC) in our institute.

Presence of infection makes burn as a challenging condition to the treating doctor and it affects adversely on outcome in form of prolonged hospitalization, delayed wound healing, abnormal and unsightly scar which may lead to various deformities, especially on face and extremities. Other patients are also at the risk of developing infection due to reduced immunity and cross infection [2].

Concept of barrier nursing is not a new concept, it is defined as establishment of stringent infection control techniques in nursing practice. With the aim of prevention of transmission of infectious pathogenic organisms between the contagious patient

and other patients and staff in the hospital, and thence to the outside world by Various measures like patient isolation, protective clothing, wearing mask, maintenance of hand hygiene protocol, restricted entry of visitors etc [3].

We use to conduct regular audit in our tertiary burn care centre, which is done by Hospital Infection Control Committee (HICC) to monitor and upgrade our services. The audit is done in a blinded manner without the knowledge of resident doctors, nurses and other staff of burn centre. We found that after introduction of "Tele Barrier Nursing" the infection rate was reduced and outcome was improved [4].

"Tele Barrier Nursing" is being performed in JTBC by means of portable, mobile, easily available and relatively low cost devices. Visitors entry is strictly prohibited except in certain situations. Telemedicine console is situated outside the burn ward (Figure 1) containing a wifi enabled laptop. Attendant can make real time communication with his patient from outside without entering the ward (Figure 2, 3). Thus preventing cross infection significantly.

As visitors entry was not allowed, all patients experienced relaxed, reduced tension and were glad after such communication with their relatives. Satisfaction of patient and relatives was assessed on a five point scale using the parameters of Availability of basic amenities, satisfaction with cost of services, information and communication, relationship between patient and health providers. Level of satisfaction was recorded by selecting responses ranging from poor=1, fair=2, good=3, very good=4 and excellent=5. Point 1 and 2 was considered dissatisfied while points 3, 4 and 5 were considered satisfied [5].

Both patients and their relatives were found to be

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satisfied with the score ≥ 3 . Audit result of HICC also showed significant improvement in infection control (Figure 4, 5).

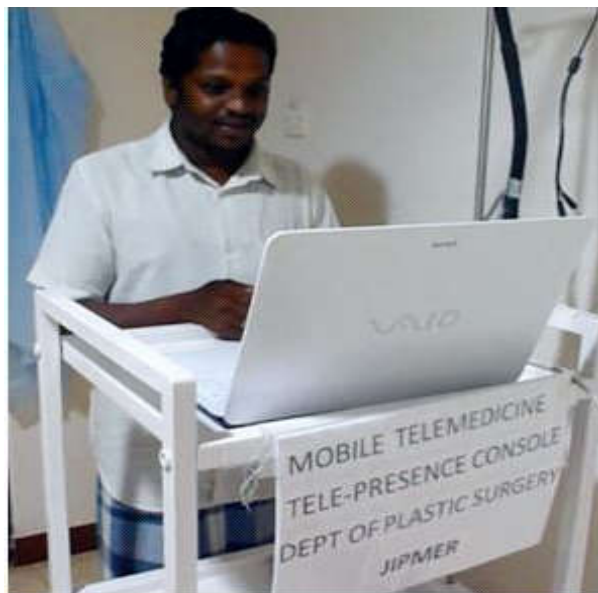


Fig. 1: Setup of telemedicine console, kept outside the ward

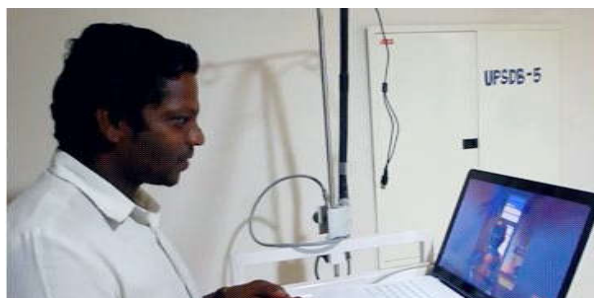


Fig. 2: Relative using console for video call without entering in the ward



Fig. 3: Child talking to the father from inside the ward

Table 1: Committee report showing burn wound infection rate before application of Tele Barrier Nursing

Block	ICU	VAP Rate		CLABSI Rate		CAUTI Rate		SSI Rate	Burn Wound Infection Rate	Bed Sore Rate	Sheath
		JIPMER	NHSN 75 Percentile	JIPMER	NHSN 75 Percentile	JIPMER	NHSN 75 PERCENTILE	JIPMER		JIPMER	JIPMER
EMS	BURNS	0.00	6.7	0.00	5.2	11.49	8.1	0.00	12.50	0.00	0.00
	CCCU	0.00	1.3	0.00	1.9	0.00	3.5	0.00	-	0.00	0.00
	CCU	22.73	1.3	0.00	1.9	0.00	3.5	0.00	-	59.60	0.00
	TC ICU	34.88	6	0.00	2.4	0.00	5.6	0.00	-	0.00	0.00
	MICU	20.74	1.6	0.00	1.9	2.16	3.9	0.00	-	0.00	0.00
MAIN	Ward 43	0.00	1.6	0.00	1.9	6.54	3.9	0.00	-	0.00	0.00
	Stepdown ICU										
	SICU	0.00	3.1	0.00	1.8	0.00	2.5	7.14	-	8.73	0.00
	32-A ICU	31.25	3.1	0.00	1.8	13.70	2.5	100.00	-	0.00	0.00
	EMT	0.00	2.8	0.00	1.2	0.00	2.5	0.00	-	0.00	0.00
	CTVS ICU	30.30	2.5	8.13	1.2	0.00	2.5	4.00	-	0.00	0.00
	KTP	0.00	2.8	0.00	1.2	58.82	2.5	0.00	-	0.00	0.00
	NUEROMED ICU	33.90	2.5	27.52	1.6	20.41	5	0.00	-	0.00	0.00
	NUERO SURG ICU	58.82	2.9	0.00	1.9	27.59	6.2	0.00	-	0.00	0.00
	SSB	PAED SURG ICU	52.63	0.9	48.78	2.1	27.78	3.8	21.05	-	0.00
	PL SURG ICU	0.00	2.8	0.00	1.2	0.00	2.5	0.00	-	0.00	0.00
	RCC ICU	0.00	1.3	19.23	1.5	0.00	2.3	0.00	-	0.00	0.00
	SGE ICU	0.00	2.8	0.00	1.2	0.00	2.5	0.00	-	0.00	0.00
	URO ICU	0.00	2.8	0.00	1.2	0.00	2.5	0.00	-	0.00	0.00
	SURGICAL	0.00	2.8	0.00	1.2	0.00	2.5	0.00	-	0.00	0.00
	ONCOLO.00GY ICU										

WCH	NICU	10.93	<750 gm-24	31.53	<750gm-4.9	0.00	0	0.00	-	0.00	0.00
			>3 gm-00		>750gm-00						
	PICU	0.00	0.9	13.89	1.5	0.00	3.1	1.45	-	0.00	0.00
	JIPMER(ICU average)	14.10	-	7.10	-	8.02	-	6.36	12.50	3.25	0.00

Fig. 5: Committee report showing reduced burn wound infection rate after application of Tele Barrier Nursing.

Block	ICU	VAP Rate		CLABSI Rate		CAUTI Rate		SSI Rate	Burn Wound Infection Rate	Bed Sore Rate	Sheath
		JIPMER	NHSN 75 Percentile	JIPMER	NHSN 75 Percentile	JIPMER	NHSN 75 Percentile	JIPMER	JIPMER	JIPMER	JIPMER
EMS	BURNS	0.00	6.7	0.00	5.2	12.35	8.1	0.00	-	0.00	0.00
	CCCU	0.00	1.3	0.00	1.9	0.00	3.5	0.00	-	0.00	0.00
	CCU	20.98	1.3	0.00	1.9	5.88	3.5	0.00	-	0.00	0.00
	TC ICU	0.00	6	0.00	2.4	0.00	5.6	0.00	-	0.00	0.00
	MICU	10.05	1.6	3.75	1.9	4.39	3.9	0.00	-	0.00	0.00
MAIN	Ward 43	0.00	1.6	0.00	1.9	6.10	3.9	0.00	-	0.00	0.00
	Stepdown ICU										
	SICU	31.58	3.1	0.00	1.8	0.00	2.5	4.35	-	8.89	0.00
	32-A ICU	20.83	3.1	0.00	1.8	0.00	2.5	100.00	-	0.00	0.00
	EMT	0.00	2.8	0.00	1.2	0.00	2.5	0.00	-	0.00	0.00
	CTVS ICU	18.87	2.5	0.00	1.2	9.17	2.5	3.45	-	11.30	0.00
	KTP	0.00	2.8	0.00	1.2	0.00	2.5	0.00	-	0.00	0.00
	NUERO MED ICU	61.22	2.5	12.05	1.6	52.24	5	0.00	-	0.00	0.00
	NUERO SURG ICU	21.51	2.9	0.00	1.9	6.71	6.2	9.52	-	9.52	0.00
	SSB	PAED SURG ICU	58.82	0.9	0.00	2.1	14.49	3.8	15.00	-	0.00
PL SURG ICU		0.00	2.8	0.00	1.2	0.00	2.5	0.00	-	32.61	0.00
RCC ICU		0.00	1.3	11.36	1.5	0.00	2.3	0.00	-	0.00	0.00
SGE ICU		111.11	2.8	0.00	1.2	0.00	2.5	17.86	-	0.00	0.00
URO ICU		0.00	2.8	0.00	1.2	27.27	2.5	5.26	-	0.00	0.00
SURGICAL oncology ICU		0.00	2.8	0.00	1.2	0.00	2.5	10.53	-	0.00	0.00
WCH	NICU	0.00	<750gm-2.4	17.96	<750gm-4.9	0.00	0	0.00	-	0.00	0.00
			>750gm-00		>750gm-3.3						
	PICU	0.00	0.9	4.08	1.5	5.62	3.1	0.00	-	0.00	0.00
	JIPMER(ICU,average)	16.90		2.34		6.87		7.90	12.69	2.97	0.00

Conclusion

“Tele Barrier Nursing” is an easy to practice, effective and low cost adjunct to Tele barrier nursing practice for improvement in burn outcome. Apart from burn management it can also be used for highly infectious dermatological conditions.

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