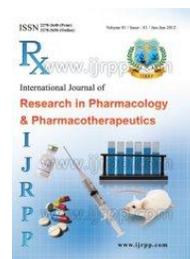




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Poison management through telemedicine in rural area

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ABSTRACT

Telemedicine is the use of telecommunication and information technologies in order to provide clinical health care at a distance. It helps eliminate distance barriers and can improve access to medical services that would often not be consistently available in distant rural communities. It is also used to save lives in critical care and emergency situations. Although there were distant precursors to telemedicine, it is essentially a product of 20th century telecommunication and information technologies. These technologies permit communications between patient and medical staff with both convenience and fidelity, as well as the transmission of medical, imaging and health informatics data from one site to another. Early forms of telemedicine achieved with telephone and radio have been supplemented with video telephony, advanced diagnostic methods supported by distributed client/server applications, and additionally with telemedical devices to support in-home care delivery systems. These article mainly focus on use of telemedicine in rural areas for “PESTICIDES POISONING” OR “SNAKE POISONING”. “Here we have an extraordinarily cost effective, rapidly responsive medical service that offers significant benefits to large numbers of patients”. This is an initiative of telemedicine to device a sophisticated “POISON INFORMATION CENTRE” especially in RURAL areas and deliver treatment as soon as possible.

Keywords: Telemedicine, Pesticides poisoning, Snake poisoning, Rural areas.

INTRODUCTION

This article highlights the importance of telemedicine and the need to implement it in rural areas emergency situations can arise and at any time. If one has access to health care facilities these can be tackled easily. But for people who are staying in far off places with minimal or no access to health services, telemedicine comes to the rescue.

Telemedicine applications play an increasingly important role in health care. They offer indispensable tools for home healthcare, remote patient monitoring, and disease management, not

only for rural health and battlefield care, but also for nursing home, assisted living facilities, and maritime and aviation settings^[1].

Emergency situations such as snake bite events and organophosphorus poisoning are one of the common and life threatening situations in the rural areas. But due to limited access to health care facilities, many of them lose their lives. These lives could have been saved.

The telemedicine facility connects the remote District Hospitals/Health Centers with Super Specialty Hospitals in cities, through the INSAT Satellites for

providing expert consultation to the needy and underserved population ^[2]. Current status of the standardization effort in India is the management of disease with an expanding application of telemedicine ^[3].

In this article, importance of telemedicine has been explained taking the example of snake bite and organo phosphorus poisoning.

Treatment of OP poisoning

Treatment includes a muscarinic antagonist (usually atropine), fluids, and an acetyl cholinesterase reactivator (an oxime that reactivates acetyl cholinesterase by removal of the phosphate group) which should be given intravenous infusion guided through telemedicine. Skin decontamination should be done as described the "way to wash skin only with sterile water without regressively rubbing" by telemedicine.

Breathing should be assisted as shown by physicians through telemedicine by with designated amounts of saturated oxygen. Place patient in the left lateral position, preferably with head lower than the feet as shown by the clinicians through telemedicine, to reduce risk of aspiration of stomach contents ^[12].

As the patient stabilizes, he should be taken to hospital immediately for further treatment.

Gastric decontamination should be considered only after the patient has been fully resuscitated and stabilised. Patients must be carefully observed after stabilisation for changes in atropine needs, worsening respiratory function because of intermediate syndrome, and recurrent cholinergic features occurring with fat-soluble organophosphorus.

Intubate the patient if their airway or breathing is compromised 5 min after giving atropine, check pulse, blood pressure, pupil size, sweat, and chest sounds. If no improvement has taken place, give double the original dose of atropine ^[4]. The second half of treatment should be done in hospital as mentioned in order to achieve beneficial therapy and poison decontamination.

Treatment of snake bite

Stinging insects are classified as hymenoptera, an order which includes Apids (honey bees, Africanized bees) and Vepids (wasps, yellow jackets and hornets) ^[5]. Insect stings and bites are known to cause

a variety of allergic reactions and direct toxic effects ^[6].

First Aid measures such as:

- At the time of the envenomation have included a variety of techniques now considered dangerous example, tourniquets, incision and suction as guided through telemedicine.
- analgesics such as paracetamol tablets for pain relief should be administered orally as dose described by Clinicians using telemedicine
- administration antivenin in field site should not be encouraged without approval of medical team contacting through telemedicine
- The victim should lie down and/or remain calm in described position seen through telemedicine by physicians ^[7].

After first aid measures being received by the patient through telemedicine examinations such as :

- The entire initial dose of antivenin should be administered as soon as possible, preferably within 4 hours after the bite. Antivenin is less effective when given 8 hours or more after envenomation and may be of questionable value when given after 12 hours. However, in severe poisonings, it is recommended that antivenin therapy be given even if 24 hours have elapsed since the bite ^[8].

Discussion

This article represents the "use" of 'telemedicine' in the cases of poisoning where the victims are 'farmers' or 'villagers' being deprived of immediate treatment and best oriented medical and health facilities.

Process of Telemedicine

Telemedicine includes:

- i) First is called Point to Point System; In Point to Point System – one patient end connects to one specialist doctor within the hospital.
- ii) In Point to Multi Point System – one patient end at a time connects to any of the specialist doctors' end within the hospital.
- iii) Multi Point to Multi Point System – several patients' end simultaneously connects to different Doctors' end at different hospitals at different geographical locations.

Telephone care, like any other form of telemedicine, is a process of delivery of care rather than a technology. It is a system which connects patients and health-care professionals in a chain of care^[9].

- It is also used to save lives in critical care and emergency situations. Although there were distant precursors to telemedicine, it is essentially a product of 20 th century

telecommunication and information technologies (IT). There are a number of tragedies occurring in remote rural areas every year where even the physicians are unable to come to treat the patients immediately, hospitals are miles a way from the site of poisoning.^[11]

Clinical profile of patients with Snake Bite Variables¹⁰:

Snake bite variables	Total	Percentage (%)
Males	98 (90 vasculotoxic, 8 neuroparalytic)	60.5
Females	64 (57vasculotoxic, 7 neuroparalytic)	39.5
Admission <6 hours of bite	109	67.3
Admission >6 hours of bite	53	32.7
Local edema	147 (n = 147)	100
Pain	14 (n = 147)	9.5
Cellulitis	23 (n = 147)	15.6
Gem bleed	1 (n = 147)	0.7
Heamturia	10 (n = 147)	6.8
Hematemesis	1 (n = 147)	0.7
Ptosis/ophthalmoplegia	4 (n = 15)	26.7
Respiratory distress	10 (n = 15)	66.7
Pain in abdomen	9 (n = 15)	60
Vomiting	3 (n = 15)	20
Diplopia	11 (n = 15)	73.3

A Single centre Prospective observational study was carried out for a period of one month (November 2014 – December 2014) in an out-patient department of Owaisi Hospital and Research Centre, a Teaching

Hospital in South India. It is a 1000-bedded Teaching Hospital situated in the heart of city at Hyderabad, Telangana, India. Several cases were observed and reported and the following statistics were observed:

Statistics Data: Many patients were not able to reach hospital in time which worsen the condition.

Types of poisoning	OP Poisoning	Snake bite poisoning
No of patients received immediate first aid measures(telemedicine)	7	5
No of patients not received immediate first aid measures	8	5
total	15	10

Case of OP Poisoning

A 30 year old male presents to the emergency department about four hours after ingestion of organo-phosphorous pesticide. He reported that 15 minutes after ingesting the OP compound he noticed tingling of his tongue and lips, followed by a floating sensation, chest tightness, nausea and vomiting. This was followed by progressive weakness particularly in

his legs which worsened to the point he could not walk, prompting his wife to call 911. an Emergency Telemedicine care centre composed of experienced medical team of physicians and clinicians who directed specific measures such as 'Skin decontamination', "breathing assistance', and 'placing patient in supine position'. Patient was brought to hospital within 50 minutes.

Patient was examined with symptoms like paresthesias initially affect the tongue, lips, and mouth, and progress to involving the extremities. Gastrointestinal symptoms was seen and include nausea and vomiting, and less often diarrhea. Muscle weakness, headache, ataxia, dizziness, urinary retention, floating sensations.

Patients was weak enough to have their respiration affected should be intubated and placed on mechanical ventilation.. Atropine has been used as 'Antidote, for OP poisoning.

Patient was able to survive due to 'First aids measures' given initially through telemedicine.

Case of snake Poisoning

A 26-year-old mother of two was stung by wasps and hornets while cutting grass in the afternoon. She was attacked and chased by a swarm of wasps for more than five minutes until she fell. With the help of everyone she was carried home and given local remedies – 'Karkalo ko Pani' (yogurt and herbal leaves) and 'Nilotutho' (a solution of copper sulphate). However, she deteriorated rapidly, so family and friends rushed her to Health Center. The patient vision faded away and became blurred, was having burning sensation in head. It was difficult opinion about Transportation to hospital at that time of day the hospital was at least three hours away and her bad situation meant she might not survive the journey. The doctor advised Intravenous saline drip (1litre) and administering other intravenous medication (furosemide 20 mg, pheniramine 45 mg and hydrocortisone 100 mg).Calamine lotion was applied to calm the patient through telemedicine. After two hours the patient showed signs of recovery when she passed urine. I kept her under observation for the whole night and she was discharged the next morning.

REFERENCE

- [1] <http://link.springer.com/article/10.1007/BF02257191#page-1>
- [2] <http://www.isro.org/scripts/telemedicine.aspx> (access date 20 April 2012)
- [3] Prathiba V., M. Rema, V. Mohan (2011). Teleophthalmology: A Model for Eye Care Delivery in Rural and Underserved Areas of India, Intl J of Family Medicine, 1-4
- [4] Nick A Buckley,b,e Peter Eyer,b,f and Andrew H Dawson "Management of acute organophosphorus pesticide poisoning" ;Michael Eddleston,a,b,d,
- [5] Frankland AW, Lessof MH. Allergy to bee stings: a review. J R Soc Med 1980;73:807–10.

Doctor accounts from hospital

The patient had multiple wasp stings on different parts of the body and we have seen cases like this many times in the hospital. One of the most dangerous consequences of this is anaphylaxis and patients can die within a short time. If the patient survives they may go into acute renal failure or shock. It is essential to do first level management in these cases. The patient must be given high doses of steroids, and drugs like adrenaline (epinephrine) should be on hand, as they are life-saving if anaphylaxis develops. To avoid acute renal failure the patient is usually given forced diuresis with intravenous fluids. The patient could easily have lost her life if we had attempted to bring her to the hospital.

CONCLUSION

In the city of Hyderabad, there are several rural areas such as Ranga Reddy and Nalgonda where there is limited access to medical facilities. These rural areas could be the better ground for telemedicine. In our article we focused on how telemedicine would help in poison management. Telemedicine could be a means by which unwanted deaths can be prevented through delivering appropriate medical help at the right time. It is beneficial especially in the management of organophosphorus poisoning and snake bite which are one of the common and lethal incidents in the rural areas.

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- [6] Sharma A, Wanchu A, Mahesha V, Sakhuja V, Bambery P, Singh S. Acute tubulo-interstitial nephritis leading to acute renal failure following multiple hornet stings. *BMC Nephrol* 2006;7:18.
- [7] Smith TA 2nd, Figge HL. "Treatment of snakebite poisoning." *Am J Hosp Pharm.* 1991 Oct;48(10):2190-6.
- [8] <http://manbir-online.com/htm2/snake.21.htm>
- [9] Wootton R. Telemedicine: a cautious welcome. *BMJ* 1996;313:1375-7.
- [10] *Iran J Pediatr.* 2013 Dec; 23(6): 632-636.
- [11] Sachpazidis I. (2008). *Image and Medical Data Communication Protocols for Telemedicine and Teleradiology*, TU Darmstadt.
- [12] Mood M. B., K. B. Mood (2008). Neurotoxic Disorders of Organo phosphorus Compounds and Their Management, *Arch Iranian Med*, 11, 65-89.