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Gender Variation In Pain Perception After Intravenous Cannulation In Adults

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Abstract

Intravenous cannulation is the most frequently used procedures in the wards, casualty and in preoperative preparation. It is a very painful and stressful procedure, thus emotions may become exaggerated at times, triggering vasovagal reaction. Patient's anxiety and fears concerning needles are real and may even prevent them from seeking health care.Our Aim was to estimate the level of pain perception after intravenous cannulation using Visual analogue pain scale among adult males and females and to study the gender variation in perception of pain.The study was conducted after ethical clearance, with a total of 100 subjects, informed consent was taken. Immediately after the intravenous cannulation using 20 gauge intravenous cannula the subjective pain was assessed by using Visual Analogue pain scale (VAS) on 0 (No pain) – 10 (Max pain). Results thus obtained were analyzed by Pearson Chi Square test(X^2).Pain perception was moderate to severe (5-10) in 64% of females as compared to 12% in males. There was significant increase in pain perception in females compared to males ($X^2 = 31.84$, $p<.001$).

Background

Pain is one of the most common widely under-treated health problems. As a basic scientific definition, pain is a sensation caused by some type of noxious stimulus. From the behavioural aspect, pain is a pattern of responses that function to protect an individual from harm.

The International Association for the Study of Pain (IASP) defines pain as "an unpleasant, subjective sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage". Untreated and inadequately treated pain causes suffering.

Almost every tissue found in the human body contains pain receptors, called nociceptors. It has been estimated that the skin may contain as many as 1,300

nociceptors in one square inch. These nociceptors respond to thermal, chemical, and mechanical stimuli through a-delta, C, and a-beta fibres. The a-delta receptors contain small, myelinated fibres that rapidly transmit acute, sharp pain signals from the peripheral nerves to the spinal cord. C receptors have larger, unmyelinated fibres that transmit pain at a slower rate and are commonly associated with long lasting, burning pain sensation.

Intravenous cannulation is the most frequently used procedure in the wards, casualty and in preoperative preparation. It is a very painful and stressful procedure, thus emotions may become exaggerated at times, triggering vasovagal reaction. Patient's anxiety and fears concerning needles are real and may even prevent them from seeking health care.

Aims & Objectives

To estimate the level of pain perception after intravenous cannulation using Visual analogue pain scale among adult males and females.

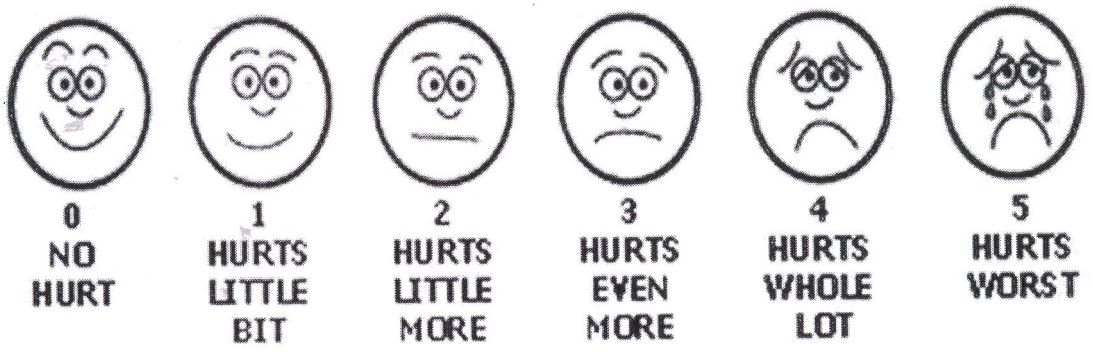
To study the gender variation in perception of pain.

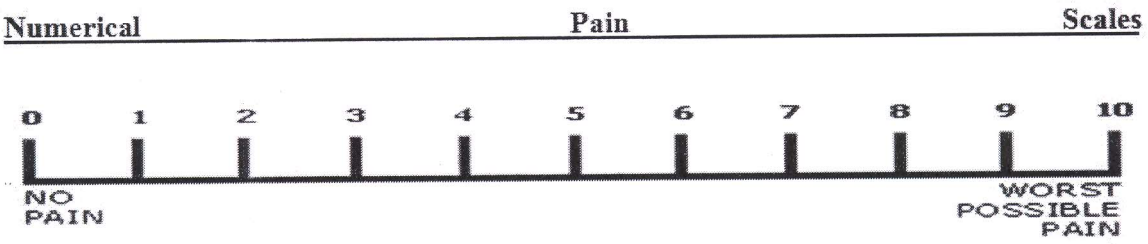
Methods And Materials

The study was conducted with a total of 100 subjects, after obtaining Ethical clearance and informed consent. The age group included 18 to 50 years of either sex and subjects were taken from general wards and preoperative wards.

Immediately after the intravenous cannulation by a trained person, with a single attempt, using 20 gauge IV cannula, the subjective pain was assessed by asking the person to give a score depending on the intensity of pain he/she experienced during cannulation- using Visual Analogue pain scale (VAS) on 0 (No pain) – 10 (Max pain).In case of illiterate patients the Faces of pain scale was used and 0- 5 scale was doubled to match the VAS scores.

Results thus obtained were analyzed by Pearson Chi Square test (X^2).





VAS Score	Intensity of pain
0 – 2	No pain to slight pain
2 – 5	Mild pain.
5 – 7	Moderate pain.
7 – 9	Severe pain.
10	Worst possible pain.

The Faces of Pain Scale

Results

Count VAS.GR	F	M	total
1.00	02	14	16
2.00	16	29	45
3.00	16	04	20
4.00	16	02	18
5.00	00	01	01
total	50	50	100

VAS.GR * SEX Cross tabulation

	Value	df	Asymp. Sig. (2-sided
Pearson Chi-Square	31.844	4	0.000
Likelihood Ratio	35.425	4	0.000
N of Valid Cases	100		

Chi-Square Tests

Discussion

In our study Pain perception was moderate to severe (5-10) in 64% of females as compared to 12% in males and was statistically significant.

Various strategies have been investigated that address the pain associated with intravenous cannula insertion. A topical preparation of local anaesthetics that can be applied to intact skin is one such option, Gajraj, NM etal, who evaluated the minimal effective onset time of EMLA® cream required to decrease intravenous cannulation pain in adults reported that pain associated with intravenous cannulation, was

significantly less after only five minutes of EMLA® cream.[1]

A number of studies have demonstrated a higher prevalence of chronic pain states and greater pain sensitivity among women compared with men. Pain sensitivity is thought to be mediated by sociocultural, psychological, and biological factors.[2]

Although differences in pain sensitivity between women and men are partly attributable to social conditioning and to psychosocial factors, many laboratory studies of humans have described sex differences in sensitivity to noxious stimuli, suggesting that biological mechanisms underlie such differences. In addition, sex hormones influence pain sensitivity; pain threshold and pain tolerance in women vary with the stage of the menstrual cycle. Imaging studies of the brain have shown differences between men and women in the spatial pattern and intensity of response to acute pain.[3]

Woodrow, Friedman et al found that males were able to tolerate more pain than females. Feine, Bushnell etal reported women had higher pain scores. Woodrow, Friedman, Siegelaub, et al found that males were able to tolerate more pain than females. [4]

Research indicates that women experience greater clinical pain, suffer greater pain-related distress, and show heightened sensitivity to experimentally induced pain compared with men. Many times going the extra mile by implementing treatments that provide patient comfort and allay anxiety will make the difference in patient satisfaction.[5,6].

Conclusion

In our study there was significant increase in pain perception in females compared to males ($X^2 = 31.84$, $p<0.001$).

Further research is needed to implement treatments based on gender variation of pain perception that may enable tailoring of pain treatment to individual characteristics.

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References

1. Gajraj, NM, Pennant, JH, Watcha, MF. Eutectic Mixture of Local Anesthetics (EMLA®) Cream .Anaesthesiology & Analgesia. 1994; 78: 574- 583. (s)

2. Zsuzsanna Wiesenfeld, Hallin. Sex differences in pain perception. Gender Medicine .2005; 2 (3):137-145. (s)

3. Woodrow K M, Friedman G D, Siegelaub A B, et al. Pain tolerance: Differences according to age, sex, race. Psychosomatic Medicine.1972; 34:548-551. (s)

4. Fiene J S, Bushnell M C, Miron D, et al. Sex differences in perception of noxious heat stimuli. Pain. 1991; 44:255-262. (s)

5. Anita M. Unruh. Gender variations in clinical pain experience. Pain.1996; 65:123-167. (s)

6. Paller CJ .Sex-based differences in pain perception and treatment. Pain Med. 2009; 10(2): 289-99. (s)

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