Knowledge of Staff Nurses Regarding Intravenous Catheter Related Infection Working in Orissa

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Nosocomial infections associated with intravenous (IV) therapy are a major concern in today’s medical care. The field of intravenous therapy has been subject to major change, with increasing number of nurses taking on the high profile, technical aspect of care.

Now a days the intravenous therapy is used in hospital to:
- Replace fluid and electrolyte in patients who cannot take these orally.
- Replenish blood supply.
- Give highly irritating medications.
- Restore acid base balance.
- Speed up the action of certain medications by injecting them directly into the blood stream.

There are two major sources of blood stream infection associated with any intravascular device:
- Colonisation of the device itself.
- Contamination of the fluid administered through device.

The goal of minimising IV catheter-related infections can be achieved by compliance with accepted basic infection control principles which include:

a. Effective hand washing by the practitioner before and after intravenous care.
b. Strict adherence to aseptic procedure from the start and maintaining the therapy.
c. Protection of the site from contamination during the therapy.
d. Regular and frequent assessment of the patient and the intravenous side for detection of any developing problem.

Objectives

The study sought to: (i) assess and evaluate the knowledge of staff nurses towards management of IV catheter-related infection in surgical wards of MKCG Medical College Hospital, Berhampur. (ii) study the relationship of knowledge of staff nurses with the variables like age, education and experience, and (iii) assess the association between age, education and experience with knowledge by chi-square testing (a statistical method).

Assumptions

a. The staff nurses will have some knowledge about IV catheter-related infections.
b. Staff nurses will express their free and frank feelings about intravenous catheter-related infections.
c. Information gathered from staff nurses would form a basis for future improvement of knowledge of staff nurses.
d. The population selected for the study comprised of the staff nurses working at surgical wards of MKCG Medical College Hospital, Berhampur, Orissa.

Research Tools & Techniques

Structured knowledge questionnaires research design was found to be practicable.

Delimitations

The study is delimited to: (a) only staff nurses attending in surgical wards of MKCG Medical College Hospital, Berhampur, (b) staff nurses available during the study period and willing to participate in the study, (c) knowledge of staff nurses about IV catheter-related infections, and (d) written answers by staff nurses on structured knowledge questionnaires about IV catheter-related infections.

Methodology

Research methodology indicates the general pattern of organising the procedure for gathering valid and reliable data from investigation. A structured knowledge questionnaires was prepared to assess the knowledge of staff nurses. Out of 25 questions, 5 were having one correct an-
answer and 20 were with more than 1 correct answers. A score was given to each correct responses and the possible range of score was 0 to 3.

To ensure the content validity of tool it was submitted to 5 experts of the related field and their valuable opinion and suggestion. There was 100 percent agreement of the experts, knowledge and few items were slightly modified in terms of clarity as suggested by experts.

Data obtained from a sample of 50 staff nurses were analysed by descriptive research method and inferential statistics. Frequency, percentage and mean score were tabulated for each items and presented through Tables (1 to 4) and graphs.

**TABLE 1.** Association between age and knowledge score of staff nurses about “a protective skin preparation is essential before giving IV therapy” (n=50).

<table>
<thead>
<tr>
<th>Age (in years)</th>
<th>Adequate (&gt;1.78)</th>
<th>Inadequate (&lt;1.78)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 40</td>
<td>18</td>
<td>02</td>
<td>20</td>
</tr>
<tr>
<td>Below 40</td>
<td>16</td>
<td>14</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>16</td>
<td>50</td>
</tr>
</tbody>
</table>

\[X^2 = 5.82, df=1, p<0.02\]

**TABLE 2.** Association between experience and knowledge score of staff nurses about “factors associated with increased risk of IV catheter-related infections” (n=50).

<table>
<thead>
<tr>
<th>Experience (in years)</th>
<th>Adequate (&gt;2.58)</th>
<th>Inadequate (&lt;2.58)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 10</td>
<td>30</td>
<td>02</td>
<td>32</td>
</tr>
<tr>
<td>Below 10</td>
<td>07</td>
<td>11</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>13</td>
<td>50</td>
</tr>
</tbody>
</table>

\[X^2 = 7.58, df=1, p<0.01\]

**TABLE 3.** Association between educational status of staff nurses and knowledge score about “concept, causes, prevention, complication and management of IV catheter-related infections”. (n=50).

<table>
<thead>
<tr>
<th>Education</th>
<th>Adequate (&gt;38.48)</th>
<th>Inadequate (&lt;38.48)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNM</td>
<td>23</td>
<td>13</td>
<td>36</td>
</tr>
<tr>
<td>BSc (N)</td>
<td>13</td>
<td>01</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>14</td>
<td>50</td>
</tr>
</tbody>
</table>

\[X^2 = 5.95, df=1, p<0.01\]

**TABLE 4.** Association between educational status of staff nurses and knowledge score about “concept, causes, prevention, complication and management of IV catheter-related infections” (n=50).

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<td>50</td>
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\[X^2 = 5.95, df=1, p<0.01\]

The discussion is based on the data procured for the study conducted on knowledge assessment of staff nurses regarding management of IV catheter related infections.

As per Table 1, 48% out of 50 had less than 5 years experience, 14 (28%) were having 6-10 years of experience and 32 (64%) were having more than 10 years of experience.

Age: 21 to 30 (16%)
31 to 40: 22 (44%)
41 and above: 20 (40%)

Of the 50 subjects, 36 (72%) were GNM and 14 (28%) were B.Sc. Nursing.

As per hypothesis 1, 2, 3 and
4, most staff nurses who had more than 10 years of experience gave the fully correct answer & scored more. The partially correct answers were given by nurses who had 6-10 years of experience. Incorrect answers were mostly given by the nurses who had less than 5 years of experience in specific field and were aged below 40 years.

Education is a contributing factor in the knowledge assessment of staff nurses regarding IV catheter-related infections. The staff nurses with B.Sc. Nursing qualification furnished more correct answers and scored more as compared to the staffs of general nursing qualification and it was statistically significant by chi-square test. Thus, the factors most clearly associated with the knowledge assessment are: age, education or training, experience and interest in the field.

References

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