

A Study to Assess and Evaluate the Effectiveness of Structured Teaching Programme On Self Care of Arteriovenous Fistula in Terms of Knowledge and Practice Among Patients with End Stage Renal Disease at Selected Hospital Kanpur

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Abstract

Background: End-Stage Renal Disease (ESRD) patients undergoing hemodialysis through an arteriovenous (AV) fistula require adequate knowledge and self-care practices to prevent complications and maintain fistula patency.

Methodology: A quasi-experimental one-group pre-test post-test design was adopted. Forty ESRD patients with surgically created AV fistulas undergoing hemodialysis were selected using purposive sampling. Data were collected using structured knowledge and practice questionnaires. The intervention consisted of a Structured Teaching Programme on AV fistula self-care. Data were analyzed using descriptive and inferential statistics, including paired t-test, correlation coefficient, and chi-square test at a 0.05 level of significance.

Results: The mean knowledge score increased from 8.35 in the pre-test to 15.65 in the post-test ($t = 31.019$, $p < 0.05$). The mean practice score increased from 6.27 to 11.72 ($t = 29.879$, $p < 0.05$). A significant positive correlation was observed between post-test knowledge and practice scores ($r = 0.560$, $p = 0.000167$). Significant associations were found between post-test knowledge and the number of hemodialysis sessions per week ($\chi^2 = 9.14$, $p < 0.05$), and between post-test practice and family income ($\chi^2 = 11.84$, $p < 0.05$).

Conclusion: The Structured Teaching Programme was effective in significantly improving knowledge and self-care practices regarding AV fistula among ESRD patients undergoing hemodialysis. Enhanced patient education can contribute to better fistula management and improved treatment outcomes.

Keywords: End-Stage Renal Disease, Arteriovenous Fistula, Self-Care, Structured Teaching Programme, Knowledge, Practice, Hemodialysis.

Introduction

Arteriovenous Fistula (AVF) According to the National Kidney Foundation, by the year 2008, three million people will be expected to have what is known as end-stage renal (kidney) disease.

These people can be of any age, from any background. They are typically suffering from another condition or disease that has led to kidney shutdown and most will require dialysis. Among dialysis patients, over half will have an AV fistula

as vascular access.

According to the National Kidney Foundation, Arteriovenous (AV) fistula, which connects a vein to a nearby artery in the arm, is the preferred access out of the three methods available for hemodialysis patients. AV fistula lasts longer and has a lower rate of infections and other complications. To help spread the word about the benefits of the AV fistula, the National Kidney Foundation has teamed up with other kidney disease organizations on the Fistula First Breakthrough Initiative. This initiative offers an array of educational materials on dialysis and the AV fistula. Materials cover topics ranging from choosing a qualified surgeon to keeping the fistula infection-free.

AV Fistula Use among Men and Women, AV fistula use increased from

27.9 to 55.0 percent between 1998 and 2007. AV fistula use increased in both men and women. AV fistula use rates among men were twice as high as among women in the late 1990s. Women have begun to narrow the gap in AV fistula use.

ESRD Incident Rates by Race, ESRD incident rates are more than three times higher for African Americans than for Caucasians. After rising from 1980 to 2000, the incident rates for all races stabilized. African American rates rose more quickly than rates for all other races. In 2001, incident rates for American Indians started to decline.

ESRD Prevalence and Prevalent Rate, At the end of 2009, more than 871,000 people were being treated for ESRD. Between 1980 and 2009, the prevalent rate for ESRD increased nearly 600 percent, from 290 to 1,738 cases per million. The development of self-care behaviours with the AVF allows the access to maintain the best possible conditions, because its state influences the efficacy of the dialysis treatment. However, few studies assess self-care behaviors that people with ESRD have with the AVF, as well as interventions that promote this self-care. Design Discursive paper. The kidney regulate body's fluid, electrolyte by producing urine and acid base while removing toxic substances from the blood. The kidneys have remarkable functional reserve. Up to 80% of GFR may be lost with few

overt changes in the functioning of the body

In 1943 Willem Kolff in the Netherlands performed the first successful dialysis on a human being with the use of a rotating drum dialyzer. In 1966 the use of subcutaneous internal Arteriovenous fistula was introduced.

An Arteriovenous fistula is created most commonly in the fore arm with anastomoses between an artery and a vein. This fistula provides for arterial blood flow through a vein. The arterial blood is essential to provide the rapid blood flow required for hemodialysis. The internal fistula must be created 2 to 6 weeks before it can be used this method reduces the risk of infection and have the best overall patency rates and least number of complication if properly cared. An Arteriovenous fistula is most commonly created in the fore arm usually between radial or ulnar artery and cephalic vein. This anastomosis can be done in an end to side, side to side

End Stage Renal Disease (ESRD) can result from various hereditary and acquired kidney diseases. It is the last stage of Chronic Kidney Disease (CKD), a major cause of mortality, and is associated with compromised quality of life, high mortality and high burden of illness (Griva et al., 2009, 2010). The incidence and prevalence of ESRD has markedly increased worldwide. According to the Annual Data Report (United States Renal Data System, 2012) the incidence of ESRD between 1999 and 2009, increased from 337 to 355.4 per million. In Beijing, from 2002 to 2006, the incidence increased from 214 to 391 per million (Zuo and Wang, 2007). Further, the rapid expansion of the world wide elderly population is predicted to have a significant effect on rates of ESRD (Griva et al., 2011). Maintenance hemodialysis (MHD) is the most common therapy for ESRD. In the USA, it was reported that 64.9% of ESRD patients received hemodialysis while 4.8% received peritoneal dialysis (PD)

United States Renal Data System 2012, Unfortunately the complications and social and psychological stress resulting from MHD and ESRD reduce the survival rates and quality of life, and mortality is high among patients receiving renal

replacement therapy. In Singapore survival during the first year of dialysis was 89.3% which fell to 58.7% after 5 years (Ministry of Community Development, 2010). Risk factors for mortality include old age, physical and nutritional impairment, heart failure and depression (Bradbury et al., 2007; Foley et al., 1998; Soucie and McClellan, 1996). Improving the level of self-management by people undergoing hemodialysis is an effective way to reduce the incidence of mortality and complications and improve quality of life (Griva et al., 2011; she, 2007; Wang and Ma, 2005).

Hemodialysis requires radical lifestyle changes including regular attendance at a dialysis unit for treatment, restriction in fluid intake, dietary restrictions and taking medications. Restriction in fluid intake is associated with cardiovascular disease, which accounts for approximately 50% of all deaths (Wang and Ma, 2005). Poor adherence to the requirements of the regime can significantly impact on the risk of morbidity and mortality (Griva et al., 2011). These life style changes are strongly influenced by the individual becoming more involved, by adopting more control, or in other words increasing self management. Therefore interventions aimed at improving the level of self-management offer an effective tool to support adjustments to lifestyle changes required in Hemodialysis

Objectives

1. To assess knowledge of waterborne diseases among early adolescents in urban and rural schools.
2. To compare knowledge levels between urban and rural adolescents.
3. To find associations between knowledge levels and selected socio-demographic variables.

Hypothesis

H1: Urban school children will have significantly higher knowledge than rural school children regarding waterborne diseases.

Operational Definitions

- Knowledge: Correct responses to a structured questionnaire.

- Waterborne diseases: Illnesses such as diarrhea, dysentery, and typhoid caused by consuming contaminated water.
- Early adolescents: Children aged 11–14 years.

Methodology

A quantitative, descriptive comparative research design was used. The study was conducted in selected schools of urban (Nehru Nagar) and rural (Andagaon) areas in Durg, Chhattisgarh. Eighty students (40 from each area) were chosen through purposive sampling. A validated structured questionnaire was administered. The tool's reliability was confirmed ($r = 0.72$). Ethical approvals and consent were obtained.

Results

Descriptive and inferential statistics were used. Urban students had a mean knowledge score of 6.2 (SD = 0.6), while rural students scored 4.2 (SD = 1.3). The t-test value was 21.99, showing a statistically significant difference ($p < 0.005$). Chi-square analysis showed significant associations between knowledge and variables like parental education and occupation.

Discussion

The study revealed higher awareness of waterborne diseases among urban adolescents, possibly due to better education, sanitation, and media access. These results align with previous studies indicating gaps in rural health literacy. Addressing these disparities requires educational interventions and improved infrastructure.

Conclusion

The findings emphasize a significant urban-rural disparity in knowledge about waterborne diseases among adolescents. Effective awareness programs, especially in rural schools, are essential to improve health literacy and reduce the burden of preventable diseases.

Recommendations

- Implement structured health education in rural schools.
- Conduct periodic awareness campaigns.
- Encourage parental involvement in hygiene education.

- Provide accessible and clean drinking water in all schools.

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