Analysis of Animal Species for More Nutrition Sensitive

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Description

Antimicrobial resistance (AMR) is leading to greater therapeutic cost, length of hospital stays, adverse events, morbidity and mortality. Hospital-based antimicrobial stewardship programs (ASPs) engaging physicians, pharmacists, microbiologists and nurses are considered as effective way to ensure appropriate use of antimicrobial agents. The aims of our study were to assess nurses' perception, involvement, confidence and barriers towards hospital-based ASPs, and use the findings to provide future guidance.

Antimicrobial Resistance

Antimicrobial Resistance (AMR) is one of the leading global public health threats facing humanity. AMR is associated with greater health care costs and mortality. In 2019, 4.95 million deaths were associated with AMR, with the potential for more than 10 million deaths by 2050 leading to a 3.8% reduction in Gross Domestic Product (GDP) unless addressed. More than 90% of deaths due to AMR occur in Low-Middle Income Countries (LMICs), especially in Africa and Asia due to numerous political, economic and sociological factors.

In view of increasing AMR concerns and its implications, the World Health Organization (WHO) developed the Global Action Plan (GAP) against AMR in 2015 and advised all its member states to produce national plans. The GAP has five objectives including optimizing the use of antimicrobial agents. Pakistan was no exception; however, there have been concerns and challenges with the current implantation of its National Action Plan (NAP) similar to other LMICs. Anti-Microbial Stewardship (AMS) is defined as 'a coordinated programs that promotes appropriate use of antimicrobial, improves patient outcomes, reduces AMR, and decreases the spread of infections caused by multidrug-resistant organisms. AMS is a proven, collaborative, multisectoral approach engaging all the health care leaders, policy makers, infectious disease specialists, microbiologists, physicians, clinical pharmacists and nurses to improve appropriate prescribing of antibiotics and reduce AMR.

ASPs can effectively reduce AMR, mortality, length of hospital stay, hospitals readmission rate and health care expenditure. An earlier study from Colombia reported a significant decrease in antibiotic consumption due to hospital-based ASPs, with a study from Iran documenting that the expenditure associated with antimicrobial utilization had been reduced by 41.3% due to ASPs. However, there have been concerns with the instigation of ASPs in LMICs in view of knowledge, manpower and other resources issues. However, this is starting to be addressed as seen for instance across Africa.

Nurses provide continual care for hospital patients including the administration of antibiotics advised by the physicians. They are also heavily involved in delivering care in primary healthcare clinics under the guidance of physicians given the paucity of physicians working in these clinics in LMICs especially rural areas.

Extensively Drug Resistant

Irrational use of antimicrobials is a significant factor in the development of AMR alongside poor infection control measures and a lack of adequate sanitation.1,2 Pakistan is a LMIC located in South Asia, highly vulnerable to AMR development, including both Multi-Drug Resistant (MDR) and Extensively Drug Resistant (EDR) infections in different areas throughout the country.6 The key drivers of antibiotics misuse are similar in Pakistan to other LMICs, and include a poor health infrastructure, inadequate awareness among health care providers regarding AMR through poor health education, high cost of consultation among the private sector, lack of proper facilities in public sector hospitals, unrestricted availability of antibiotics as well as customer demand to purchase antibiotics without prescriptions, which includes those from the world health organization's reserve list.

Nurses increasingly serve as antibiotic first responders, central communicators, coordinators of care, as well as being aware of the actual condition of the patients on antibiotic therapy. Besides their conventional rolls, their integration in ASPs has been endorsed in many parts of the world due to their ability to perform tasks, which includes assuring culture and sensitivity testing is undertaken before initiation of antibiotics, documenting any antibiotic related allergies, promoting the rationalization of antibiotics doses and duration as well as their indication.

According to the human resources for health vision of the government of Pakistan 2018, there are 104,046 nurses (including midwives and lady health visitors) in the country. Whilst previous studies have been conducted among health professionals including hospital administrators, medical doctors and pharmacists in Pakistan about their awareness and

involvement in hospital-based ASPs; we are unaware of any study conducted to date in Pakistan that has explored the perspectives and involvement of nurses in ASPs in either public or private healthcare settings. Consequently, we sought to address this by conducting a multi-center, cross-sectional study among registered nurses currently serving in public sector hospitals of Pakistan. We started with public hospitals as these are the most prolific in Pakistan. The findings can help develop additional educational programmes among nurses if pertinent to improve future antimicrobial prescribing.

The Inter Vertebral Disc (IVD) is an important structure in the human body because it functions as a weight-bearing. This structure undergoes a process of degeneration like the rest of the body and this process is known as Intervertebral Disc Degeneration (IDD) which is the most common cause of Low Back Pain (LBP). The current common management, either conservative or surgical, is pain-relieving and has not been able to restore degenerated disc optimally. Changes in the IVD microenvironment in IDD conditions make it difficult for the regeneration process to occur. Research to reverse the degeneration process continues to develop; one of them is the use of Adiposederived Stem Cells (ASCs). ASCs is superior due to the ability to differentiate into several other cells such as adipocytes, chondrocytes, and osteoblasts, it also has ability to act as immune modulators by stimulating the migration of immune cells to damaged tissues. ASCs becomes a good choice because it is easy to obtain, low donor site morbidity, high proliferation rate, and excellent differentiation abilities. Research on the optimal preparation process for ASCs and their application to various disorders continues to advance. This study aims to review the potential use of ASCs for regeneration of intervertebral disc degeneration.