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RESEARCH ARTICLE

“HEPATITIS B AND C PREVALENCE AND PREVENTION AWARENESS AMONG HEALTH CARE PERSONNEL IN TERTIARY CARE MEDICAL COLLEGE HOSPITALS IN BANGALORE CITY”

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Abstract

Worldwide, an estimated 80 million people are hepatitis B virus (HBV) carriers. India has the intermediate endemicity of hepatitis B surface antigen prevalence between 2% and 10%. The number of carriers in India has been estimated to be over 40 million.

Objective:- To establish the prevalence of Hepatitis B and C infections and to assess the awareness about the diseases in health care personnel in tertiary care medical college hospitals in Bangalore.

Methodology:- Study was conducted in 686 health care personnel (H.C.P.) from August 2014 to December 2014. Health care personnel at risk of exposure to Hepatitis B and C such as doctors, nurses, support staff and lab technicians were included. 5 ml of blood was drawn and sent for testing.

Result:- Out of 686 personnel, 5 personnel tested positive for HBsAg (0.73%) and three for anti HCV antibodies (0.44%). 204 personnel had exposure to blood/blood products out of which only 10 took post exposure prophylaxis. 158 personnel had needle stick injuries out of which 14 took post exposure prophylaxis. A total of 456 were vaccinated against Hepatitis B of which only 74 had taken the full course. Out of the 230 unvaccinated personnel, 88.7% were unaware of the vaccination available. Only 33.3% of the personnel were aware of post exposure prophylaxis, 23.47% did not know about universal precautions and 33.05% were unaware about the vaccinations available.

Conclusion:- This study shows the greatest risk of exposure to infected blood and blood products, needle stick injuries occurred among nurses and doctors in high risk areas of the health care centre. Our study reflects the need for increased awareness and knowledge about these diseases in health care personnel with strict vaccination programmes and post exposure prophylaxis regimens.

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Introduction:-

Worldwide, there are an estimated 80 million hepatitis B virus (HBV) carriers i.e. 6% of the world's population. India has the intermediate endemicity of hepatitis B, with hepatitis B surface antigen prevalence between 2% and 10% among the population studied. The number of carriers in India has been estimated to be over 40 million¹. It has been estimated that 14.4% and 1.4% of hospital workers are infected with HBV and hepatitis C virus (HCV), respectively^{2,3}.

Physicians, dentists, nurses, laboratory staff, and chair side assistants are at high-risk of acquiring infection via contact with blood (and other body fluids) in the course of their work by skin prick with infected/ contaminated needles and syringes or through accidental inoculation of minute quantities of blood during surgical and dental procedures.

HBV and HCV transmission can be prevented by strict adherence to standard microbiological practices and techniques, and routine use of appropriate barrier precautions to prevent skin and mucous membrane exposure while handling blood and other body fluids of all patients in health-care settings and also by adopting pre-exposure vaccination practices.

As health-care personnel (HCP) remain at a high-risk of transmission by skin prick with infected, contaminated needles and syringes or through accidental inoculation of minute quantities of blood during the surgical and dental procedures, it is very important for them to follow proper measures of infection control and prevention.

Knowledge and attitude of health care personnel play a key role in preventing the spread of these infections. Therefore, the objectives of the present study were to assess the prevalence of Hepatitis B and C infections among health care personnel as well as to assess the knowledge, awareness and practices of health care personnel regarding Hepatitis B and C.

Objectives:-

1. To establish the prevalence of hepatitis B and C infections in high risk health care personnel in 3 tertiary care medical college hospitals in Bangalore.
2. To evaluate the awareness among health care personnel about the diseases, modes of transmission, complications, management and prevention.

Materials and Methods:-

The present study was conducted among 686 health care personnel from August 2014 to December 2014. Institutional Ethics Committee approvals were taken before the study was started. A select group of health care personnel at high risk of exposure to Hepatitis B and C such as doctors, nurses, support staff and lab technicians were included in the study. Past history of jaundice, blood transfusions, cases of chronic liver disease with known HbsAg/HCV status, individuals on anti-retroviral therapy/anti-tubercular therapy/prolonged steroid therapy and patients with documented immunosuppression were excluded from the study.

Methodology:-

Counselling of the health care personnel by a doctor and the need for the study were explained. Personal health assessments were obtained by the standard self- assessment questionnaire after written informed consent. Questionnaires were assessed on data such as age and sex, past history of hepatitis B or C, blood transfusions, immunosuppressive drugs, pregnancy, history of exposure to blood/blood products or needle stick injuries with details of the event if present such as occurrence, use of universal precautions, post exposure prophylaxis. History of vaccination against hepatitis B was sought including vaccination schedule and antibody titres. Knowledge about hepatitis B and C in the form of modes of transmission, complications, drugs available, vaccination schedule, post exposure prophylaxis(P.E.P.) and universal precautions were also assessed. Sample of 5 ml blood were drawn and sent for testing from each of the individual. HbsAg estimated by ELISA method (QUALPRO DIAGNOSTICS, Manufactured in Goa, India) and anti-HCV antibodies by ELISA method (QUALPRO DIAGNOSTICS, Manufactured in Goa, India). Strict confidentiality was maintained throughout the study period regarding test results.

Statistical analysis:

Proportions were compared using the chi square test. Data analysis was carried out using Statistical Package for Social Science (SPSS ver 10.5) package.

Results:-

A total of 686 health care personnel were subjected to testing of which 248 were males (36.15%) and 426 were female (63.85%). Out of the 686 health care personnel, 132 were doctors (19.24%), 325 were nurses (47.38%), 61 were lab technicians (8.89%) and 159 were support staff (23.18%) **Fig 1**. 204 health care personnel had history of contact with blood and blood products (29.74% of the total). of which 29 were exposed to HbsAg positive patients (14.21%), 6 to HCV positive patients (2.94%) and 91 to patients whose status was unknown (44.61%) **Fig 2**. A total of 10 health care personnel exposed to blood/blood products took post exposure prophylaxis (4.90%).

158 health care personnel had history of needle stick injuries (23.03% of the total) of which 26 were exposed to HbsAg positive patients (16.46%), 1 to a HCV positive patient (0.63%) and 68 to patients whose status was unknown(43.04%)**Fig 3**. A total of 14 health care personnel exposed to needle stick injuries took post exposure prophylaxis (8.87%).

Exposure to blood/ blood products and needle stick injuries were reported in 362 individuals during which on only 24 occasions were universal precautions being practiced (9.39%).

Vaccination status: A total of 74 of the health care personnel were completely vaccinated against Hepatitis B(10.79%), 184 had taken only 3 doses(26.82%), **Fig 4**. 89 had taken only 2 doses(12.97%), 64 had taken only a single dose of the vaccine(9.33%) and a total of 230 health care personnel remained unvaccinated(33.53%).

The major reason for non vaccination was unawareness about the availability of vaccination against hepatitis B (88.7% of the unvaccinated), followed by unavailability of the vaccination (4.78%).

An assessment of the knowledge about hepatitis B and C revealed that 455 of the health care personnel did not know about post exposure prophylaxis (66.33%), **Fig 5**. 179 did not know of the modes of transmission of the diseases(26.09%), 213 were unaware of the vaccinations available against hepatitis B(31.05%) and 161 did not know about universal precautions(23.47%).

A total of 5 personnel were found to be HbsAg positive (0.73%) and 3 were anti HCV antibody positive(0.44%) in our study.

Figure 1:- Distribution of health care personnel.

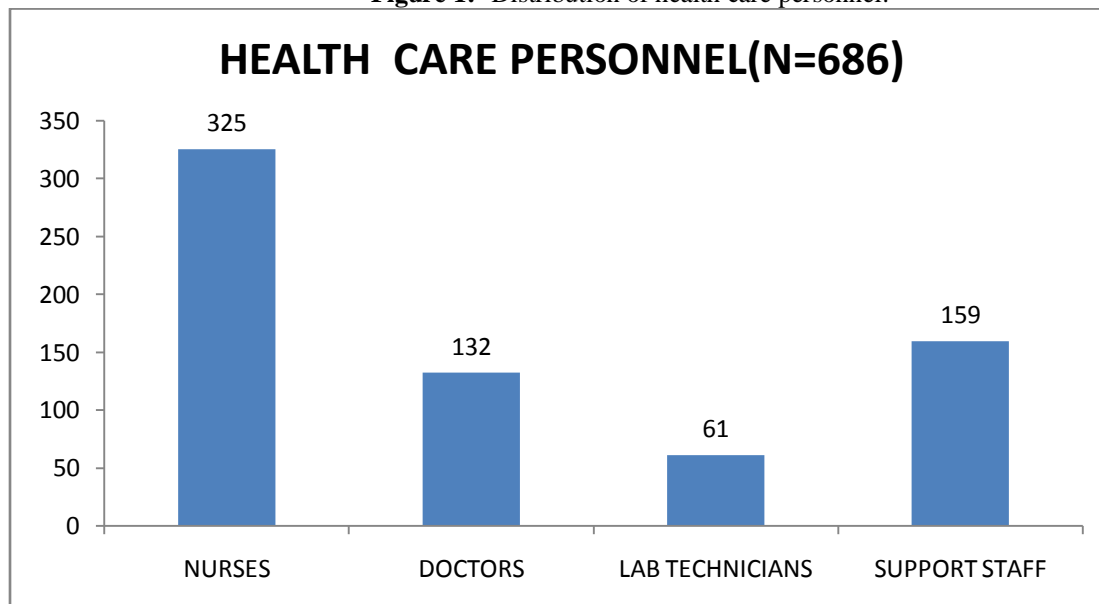


Figure 2:- Contact With blood/blood products.

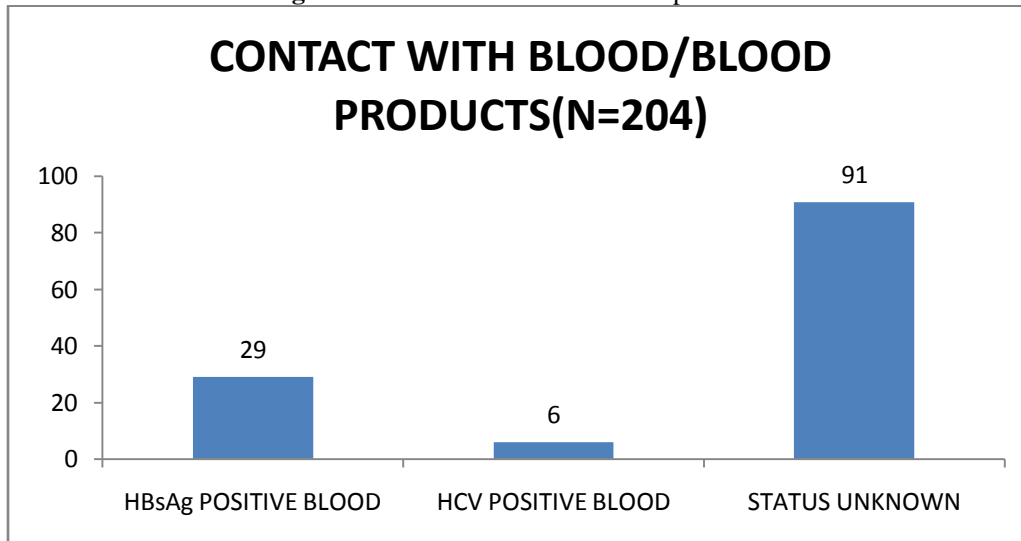


Figure 3:- Needle stick injuries.

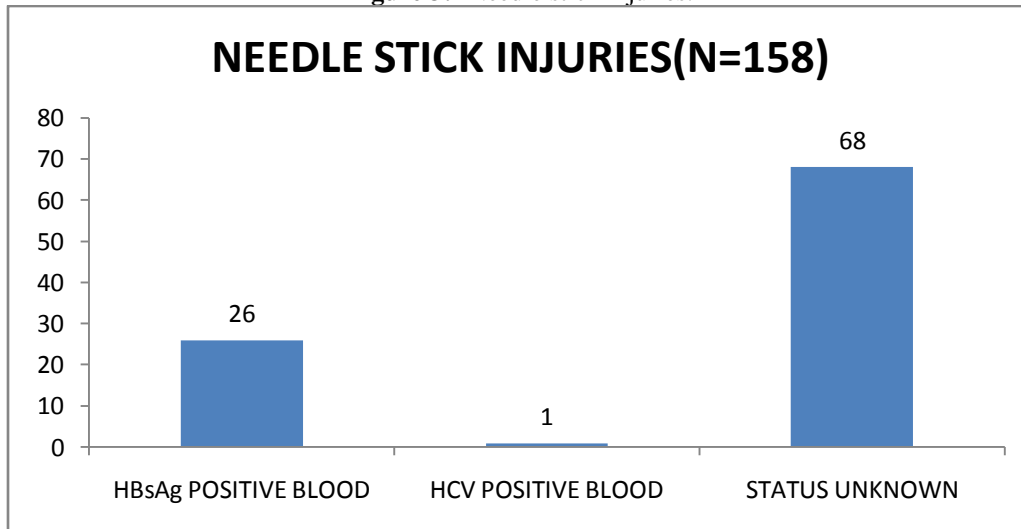


Figure 4:- vaccination status.

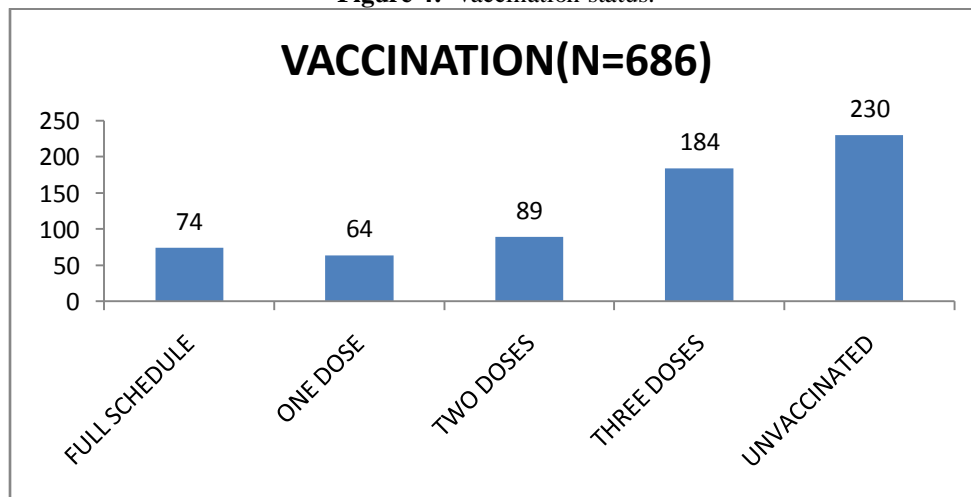
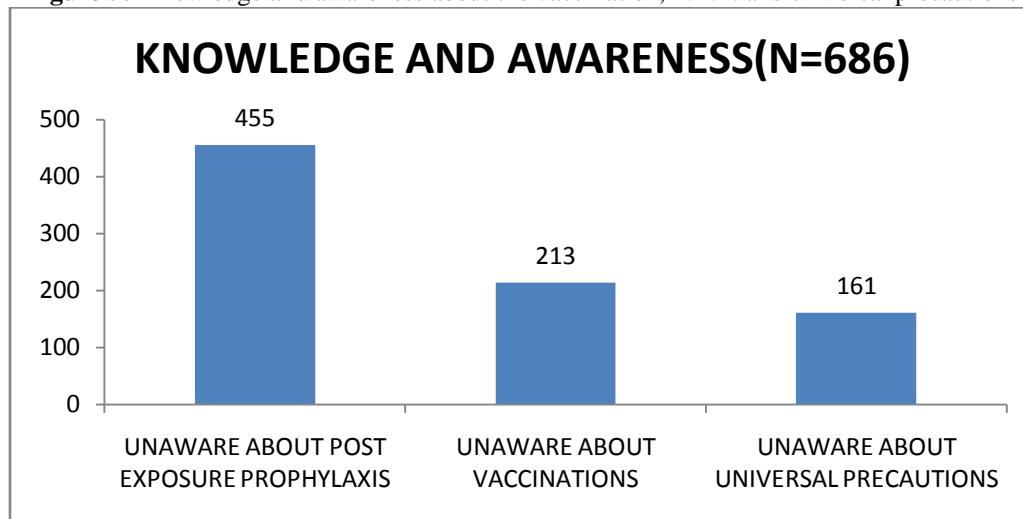


Figure 5:- knowledge and awareness about the vaccination, P.E.P. and universal precautions**Summary:-**

In our study, 0.73% of H.C.P. were HbsAg positive and 0.44% were anti HCV antibody positive which is lower when compared to a study by Lanphear et al⁴ which showed 1.4% HbsAg positive and 2.4% HCV positive cases.

Our study revealed that the greatest risk of exposure to blood and blood products/needle stick injuries occurred in nurses(57.32%) followed by doctors(27.4%) when compared to a study by Varsha Singhal⁵ in New Delhi revealing maximum exposure among lab technicians(40%) .

Our study revealed that only 66.47% of H.C.P. were vaccinated against Hepatitis B with only 74(10.79%) of the H.C.P. being vaccinated with all 3 doses and the booster dose. This was much less when compared to a study by S Setia et al¹ where 86.3% of H.C.P. were vaccinated and 71% had received the full vaccination schedule. The poor compliance in our study to the vaccination schedule was probably due to lack of knowledge of the vaccination schedule.

31.05% of the H.C.P.'s were unaware of the hepatitis B vaccination schedule as compared to a study by Shaugufta Hussain et al⁶ in Pakistan where the unawareness about the vaccination schedule was 23%.

Our study revealed that out of the H.C.P. exposed to blood and blood products/needle stick injuries, only 4.9% and 8.87% took P.E.P. after exposure to blood and blood products and needle stick injuries respectively which was greater than in a study by Varsha Singhal⁵ in AIIMS, New Delhi which revealed a P.E.P. in 4% of H.C.P.

We also found that in our study, only 9.39% of the H.C.P. used universal precautions while in a study by S Setia et al¹ in Punjab, 66.3% of the H.C.P. practiced universal precautions. This showed a great deficiency in the practice of simple precautions to prevent the disease transmission.

Knowledge about P.E.P. after exposure to blood or blood products/needle stick injuries in our study was 33.67% compared to a study by Vipul Khakhhar⁷ in Gujarat where 41% were aware of P.E.P.

Conclusion:-

This study shows that the greatest risk of exposure to infected blood and blood products as well as needle stick injuries occurred among nurses and doctors in high risk areas of the health care centre.

It also reflected the lack of awareness about the vaccination schedule including dosing and availability as well as post exposure prophylaxis among H.C.P. –highlighting the need to introduce compulsory vaccination programmes against HbSag and a strict P.E.P. regimen in any health care centre.

The study also emphasizes the need for regular C.M.E. and training programmes for H.C.P. to educate them about Hepatitis B and C and the prevention strategies especially vaccination, P.E.P. and universal precautions.

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