Original Research

The value of medical student hepatitis B immunisation as part of clinical skills training in the Clinical Skills Unit of the University of the Free State

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Abstract

Background: It is compulsory for medical students of the University of the Free State to be immunised against hepatitis B before they have contact with clinical patients. Previously, the students were vaccinated on campus at the student health services. With the implementation of Curriculum 2000 (the revised MBChB programme), hepatitis B immunisation, as an example of an invasive procedure, was incorporated into the medical students' clinical skills training programme. The aim of this study was to assess the students' perceptions regarding immunising their peers, being immunised by their peers and the educational value of this process.

Methods: Medical students in Phase II of the MBChB programme were included in this observational descriptive study and participation was voluntary. Students immunised their peers with a hepatitis B vaccine in the upper arm under the supervision of medical and nursing personnel in the laboratory of the Skills Unit. After the final immunisation, the students completed an anonymous questionnaire.

Results: Sixty-six students completed the questionnaire. Of these, 80% felt that that they had improved their understanding of the theory of immunisation. Some (8%) students preferred to have the immunisation performed at a clinic or by a doctor and 6% had a problem with being vaccinated by a peer. A few (3%) students found it unacceptable to be immunised in a mixed gender group, 5% thought they had suffered complications and 5% indicated that there had been inadequate supervision. Most of the students (98%) responded positively to immunising their peers and 95% felt that it was advantageous to receive the immunisation in the skills laboratory environment. Approximately half (56%) of the students wanted to receive additional important immunisations.

Conclusion: Students were positive about practising immunisation techniques on their peers.

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Introduction

Worldwide, medical and related schools and tertiary educational institutions are realising the importance of vaccination against diseases such as hepatitis B.[1-3] Although hepatitis B is completely preventable, very few students of the age group that falls in the highest risk category have completed their immunisation. This poses a problem, as they are constantly required to participate in activities with high levels of exposure related to hepatitis B. Health institutions therefore need to adapt their health policies and make vaccinations compulsory.

As medical students are probably exposed to the greatest risk,[4] proof of hepatitis B immunisation before clinical patient contact has become mandatory at the University of the Free State (UFS). Previously, all medical students were given the necessary hepatitis B vaccinations at the Kovsie Health Clinic, the University's student health service. Students knew they were obligated to be immunised, but they never knew why and knew even less about hepatitis B. Further problems were the inadequate facilities and limited personnel at the Kovsie Health Clinic, which resulted in long queues, making immunisation a time-consuming event.

Certain medical schools abroad have implemented programmes in which medical and nursing students volunteer to assist in administering hepatitis B vaccinations.[5,6] These programmes have proven to be a great success, although

they only have learning value for the participating students.

A solution to these obstacles is firstly to provide the students with information on hepatitis B. Secondly, vaccination is a skill that needs to be learnt, and the Skills Unit development team found this an ideal opportunity for students to acquire this skill.

It is globally accepted that students practise their examination skills on each other in skills laboratories (SKL).[7-13] With the implementation of Curriculum 2000, the revised MBChB programme of the UFS, hepatitis B immunisation was incorporated into the training programme of the Clinical Skills curriculum as an example of an invasive procedure.

Various SKL use simulations for learning clinical skills.[14,15] By providing a safe and structured environment, students learn through experience and experimentation without putting patients or themselves at risk.[16] SKL also allow tutors to be in constant control of the learning process, and to be able to receive feedback and identify problems.

Communication and interviewing skills, physical examination, therapeutic and diagnostic skills, and laboratory procedures are also learnt in this environment.[14] With the use of simulations, students have the opportunity to practise the theory they have learnt, thus ensuring confidence and clinical competence.[15] Students learn methods of physical examination and put these into practice by examining simulators, which could be simulated patients or their peers. The use of peers has been widely implemented abroad and the reaction of students has been extremely positive.[7-12]

The hepatitis B learning opportunity occurred in the SKL of the Medical School, where the medical students practised immunising their fellow students under the supervision of a physician and nursing staff.

At present, students practise and learn practical clinical skills during patient contact sessions at clinics and in hospital wards, which gives rise to the issue of volunteerism by the patients in need of clinical care and related ethical considerations.[16] Efforts to expose a whole class of 120 to 150 students to such an experience under supervision would be practically impossible.

The benefit of students being exposed to different roles, namely that of patient, physician and tutor, is widely discussed in the literature.[7-15] The aim of the vaccination of peers is to expose students to clinical experience and procedural skills early in their studies, with the idea of fostering a positive attitude towards their studies.

This study aimed at assessing students' perceptions with regard to immunising their peers and the educational value of this opportunity.

Methodology

A class consisting of 72 medical students in Phase II of the MBChB programme was included in this observational descriptive study. The students were informed, in writing, that their participation was voluntary. Due to the ethical implications of unqualified persons practising on patients or their peers, all the participants had to sign an indemnity form and submit a letter of consent. The protocol for the study was approved by the Ethics Committee of the Faculty of Health Sciences of the UFS.

The class was divided into groups of approximately 20 students each. Each group received a short practical discussion on the need for compulsory hepatitis B immunisation. Precautionary measures to be taken by health workers, as well as the dangers of hepatitis B infections, were explained. Students were taught how to maintain the Cold Chain, the practical use of syringes and needles and the administration of intramuscular injections using sterile techniques. Furthermore, information about the need and use of an emergency tray, the handling of sharp objects and the disposal of medical waste was also presented.

According to the hepatitis B vaccination schedule, the first immunisation was performed in August 2001, during the second year of study, as a practical part of an SKL in a session on immunisation in the Immunology course. The second immunisation took place one month later (September 2001), as part of the skills session in the SKL. The third injection was given in the SKL approximately six months later, in March 2002, during the third year of study. The immunisation schedule was completed prior to any clinical patient contact.

Students performed the hepatitis B immunisation of their peers by intramuscular injection into the upper arm, under the strict supervision of medical and nursing personnel in the SKL. After the final immunisation, the students completed an anonymous questionnaire, which included the following questions:

- What have you learnt from the immunisation performed in the Clinical Skills Unit?
- Did the immunisation help you to understand the theory?
- Would you have preferred having a local GP/clinic do the immunisation?
- Did you have a problem with a fellow student administering the vaccine?
- Did you have a problem with vaccinating your peer?
- Was it acceptable to be part of a mixed gender group?
- Did you experience any side effects due to the vaccinations?
- Were there any other vaccinations you wanted included in this programme?
- Were there any advantages to performing the vaccinations during a practical session of Clinical Skills?
- Was there sufficient supervision whilst immunisation was performed?

Results

The students' opinions on vaccinating their peers are illustrated in Table I. Sixty-six students (92%) completed the questionnaire. Of these, 80% felt that the immunisation in the clinical environment of the SKL improved their understanding of immunisation theory. They believed that acting the roles of physicians, patients and tutors would positively influence their future studies.

Some (8%) of the participating students preferred to have the immunisation performed at their local clinic or by a private doctor, and 6% had a problem with being vaccinated by a peer. A few (3%) students found it unacceptable to be immunised in a mixed gender group, three students

Table I: Student's opinions on vaccinating their peers

n = 66	Yes		No	
	n	%	n	%
Did the immunisation help you understand the theory learned?	53	80%	13	20%
Would you have preferred having the immunisation done by your local GP/clinic?	5	8%	61	92%
Did you have a problem with the fact that a fellow student vaccinated you?	4	6%	62	94%
Did you have a problem with the fact that you had to vaccinate a fellow student?	1	2%	65	98%
Was it unacceptable in any way that you were part of a mixed group of males and females?	2	3%	64	97%
Was there sufficient supervision whilst immunising?	63	95%	3	5%
Did you suffer any side effects from the vaccination?	3	5%	62	94%

(5%) thought that they had suffered complications because of being immunised by their peers, and three (5%) indicated that there had been inadequate supervision.

Most (98%) students responded positively to immunising their peers and 95% felt that it was advantageous to receive the immunisation in the SKL. Approximately half (56%) of the students indicated that they would like to receive additional, important immunisations, with influenza, hepatitis A and tetanus being mentioned most often.

To the question, "Why was it a positive experience?", the students gave the following responses:

- I learned to give an injection;
- I gained confidence;
- I learned about the dangers of hepatitis B infection;
- I could apply the theory in practice; and
- We saved time by not attending the campus health services for the immunisation.

Discussion

The students reacted positively to practising immunisation techniques on their peers. According to the literature, non-invasive methods of clinical examination are not a problem for students.[12,13] The assumption that the same is true for practical clinical procedures, which could be invasive, cannot be made. This study concludes that students do not object to practising the administration of injections on their peers. It should be kept in mind that the procedure was performed on the upper arm, with minimal exposure of the body. Procedures that cause an invasion of privacy might be a problem, even though only a few students were negative towards this study.

In a multicultural student population, preferences and prejudices are guided by ethnic and religious norms and must be acknowledged. This problem can be overcome by ensuring that this type of activity is voluntary and adheres to general ethical patient rules.[16]

Nevertheless, some concerns about clinical skills training in a laboratory remain. Skills are practised on models and simulated patients, in this case the students' peers, but it is not clear whether the students have the confidence to perform the skills in real situations. This programme lays a foundation for invasive clinical skills learning, but follow-up programmes will have to be implemented to teach students confidence in this field.

Conclusion

The results of this study indicate that the integration of clinical practice and mastering theoretical knowledge by performing immunisations in a clinical environment is a valuable learning experience.

As hepatitis B immunisation is compulsory and extremely important for the health of medical students, the recommendation is to include the immunisation programme in the curriculum of medical schools. In this manner, vaccinations are ensured while, at the same time, students learn a new clinical skill.

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