Experience with e – learning in the English version of the elective subject: Donation and Harvest of Cells and Tissues for Transplantation

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Elective Subject „Basis of Harvest and Preservation of Tissues for Transplantation“

Included in the undergraduate study programme general medicine in the academic year 2001/2002 both in the Czech and English versions. Registered, now in the Student Information System of the Charles University in Prague under code 50012 (Czech version) and FG 500 03 (English version)

Number of enrolled students per year:
Czech version: 12-18
English version: 5-13

Structure of the subject: lectures 6 hours, practicals 6 hours, seminar 3 hours

Number of teachers in the English version: 3
Anotation of the subject in the University information system

The first e-learning course

- The first e-learning course has supported the Czech version of the elective subject since the academic year 2013/2014
- More simple English version has been available since the academic year 2014/2015
- All functions have been operated by Moodle-local application of the Medical School Hradec Králové

The course is available at the address: http://moodle.lfhk.cuni.cz/moodle2/course/index.php?categoryid=130
E-learning course - common features with classic face-to-face teaching/learning

Three main topics were preserved:

1) Cell, tissue and organ donation and harvest
2) Principles of low temperature preservation of cells, tissues and organs
3) Principles of quality and safety assurance in the tissue and procurement establishments

Number of topics of seminar theses (5-6).
E-learning course – differences from the classic face to face teaching/learning

In the Czech version the topic 4: Basic processes in the tissue establishment and principles of their validation was added.

Topic 5 was represented by the database for presentation and uploading seminar theses.

Short tests consisting of 5 questions were put between topics 1 and 2, 2 and 3, as well as between 3 and 4. If the student answers correctly at least 3 questions he/she can proceed to the next topic. Each topic is allowed to be repeated only twice.

The final test consisted of 15 questions.

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E-LEARNING COURSE: BASIS OF HARVEST AND PRESERVATION OF TISSUES – DESIGN AND INITIAL EXPERIENCE

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ABSTRACT — Background: The design and initial experience with the e-learning course “Basis of Harvest and Preservation of Tissues” enabled a support of an elective subject to be presented. The aim of the e-learning course was to enable the students to learn the theoretical principles of the subject individually and to review and gain the gained knowledge at the final seminar.

Methods: All functions of the course were operated in Moodle, local application of the Charles University in Prague, Faculty of Medicine in Hradec Králové. The course was divided into 3 main topics corresponding with topics of lectures: 1. Principles of tissue and organ donation, 2. Low temperature preservation of cells, tissues and organs, 3. Quality and safety assurance in practice of tissue and organ procurement establishments. A test consisting of 3 questions selected randomly from the bank of questions followed each topic. If the student answered correctly at least 2 questions related to each topic, the flag corresponding to the established and principles of the covered e-learning topic was added into the electronic version of the test for improving and improving of knowledge. The final exam was presented by a database for uploading those presented by students at the final seminar. The final test consisted of 30 questions (10 true-or-false basic topics). It was necessary to answer correctly at least 16 questions to receive a certificate of completing the course.

Results: The course was put into operation during the summer term of the academic year 2013/2014. To the date 15 of September the total of 25 students enrolled (21.6%, all students of the elective subject in the Czech version. 2 students of this subject in the English version, 2 postgraduate students and 1 medical doctor). All enrolled students used the course for on-line learning, downloading, or printing course study materials. All undergraduates students were obliged to use for preparation, consultation and presentations of seminar thesis, i.e., 30 minute Power Point presentations followed by remote discussion. Verification of the course was planned during the summer term of the academic year 2013/2014.

Conclusions: The first experience showed that the presented e-learning course could serve as useful support of the elective subject “Basis of Harvest and Preservation of Tissues”, practically enhanced the choice of study materials that can be regularly updated, so that the students receive the newest information. It can be also attractive for students that are not enrolled in the elective subject because of limited capacity (not more than 20 persons). The efficiency of such form of education is being a subject of further verification.

INTRODUCTION
The elective subject “Basis of Harvest and Preservation of Tissues” was established in the Charles University in Prague Medical Faculty Hradec Králové by authors in the academic year 2010/2011 both in Czech and English versions as an extension of teaching activities of the Tisne Bank University Hospital Hradec Králové existing before [1,2]. The schedule of this subject was traditionally divided into lectures, seminars and a final seminar. To complete this face to face course the students were obliged to pass through a final knowledge test consisting of 30 questions and to present seminar topics on a topic selected from 10 or
Course schedule

Introduction

Course prerequisites

Ref. No. 17

Topic 1 – Tissue and organ donation

ESS No.1

Ref. No. 11

Short test No. 1

ESS No. 1

ESS No. 2

ESS No. 3

Topic 2 – Low temperature preservation of cells, tissues and organs

Short test No. 2

Topic 3 – Quality and safety assurance in the practice of tissue and procurement establishments

Short test No. 3

Topic 4 – Basic processes in the tissue establishments and principles of their validation

ESS No. 1

Ref. No 12

Topic 5 – Preparation of seminar theses including individual consultations with the teacher or recommended experts

Final test

Topic 5 – Presentation and archivation of seminar theses

Certificate of completion of the course

ESS – electronic study support

Action in case of success

Action in case of failure

ESS – electronic study support

Ref. No. 17

Ref. No. 11

ESS No. 1

ESS No. 2

ESS No. 3

Ref. No 12

Introduction
Verification of the course – number of students

<table>
<thead>
<tr>
<th></th>
<th>Number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech speaking group</td>
<td>32</td>
</tr>
<tr>
<td>English speaking group</td>
<td>14/ EU 11</td>
</tr>
<tr>
<td>EU - Greece</td>
<td>1</td>
</tr>
<tr>
<td>EU – Federal Republic of Germany</td>
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</tr>
<tr>
<td>EU – Ireland</td>
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</tr>
<tr>
<td>EU – United Kingdom</td>
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<tr>
<td>Norway</td>
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</tr>
<tr>
<td>Malaysia</td>
<td>1</td>
</tr>
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</table>
Verification of the course – number of students who completed the course

<table>
<thead>
<tr>
<th></th>
<th>Number of enrolled students</th>
<th>Number of students who completed the course</th>
<th>Percentage of students who completed the course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech speaking group</td>
<td>32</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>English speaking group</td>
<td>14</td>
<td>14</td>
<td>100</td>
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</tbody>
</table>
Verification of the course – number of students who repeated the short tests

<table>
<thead>
<tr>
<th>Topic number</th>
<th>Czech speaking group</th>
<th>English speaking group</th>
<th>All students</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>4 (12.5%)</td>
<td>3 (21.4%)</td>
<td>7 (15.2%)</td>
</tr>
<tr>
<td>2</td>
<td>4 (12.5%)</td>
<td>4 (28.6%)</td>
<td>8 (17.4%)</td>
</tr>
<tr>
<td>3</td>
<td>0 (0%)</td>
<td>2 (14.3%)</td>
<td>2 (4.3%)</td>
</tr>
</tbody>
</table>
New English version focused on cell and tissue donation and harvest

1. Grounds: The texts covering this topic were written in the Czech language only (Třeška at al 2000, Baláž et al 2011) or were too long for the purpose of undergraduate education (Warwick et al.: Tissue and Cell Donation, Oxford 2009)

2. The new course represents an enlarged and more advanced version of the course usable also separately in teaching of clinical subjects

3. It is planned to be introduced into practice in the academic year 2016/2017
Books used as study materials of the course

[Image of books]
Structure of the new course

1. The main topic is divided into two parts:
2. The first one deals with ethical and legal aspects and organization of donation, influence of traditions and religion on practice of donation, donation and harvest for manufacturing of advanced medicinal products and presentation of donation issues to the public.
3. The second part deals with donor suitability assessment, techniques of cell and tissue harvests and evaluation of donation activities.
4. The third part of the course is represented by a database for preparation, presentation and archivation of seminar theses.
Schedule of the new course

Introduction

Course prerequisites

Donation and harvest of cells and tissues – Part 1

ESS No. 1

Short test No. 1

Donation and harvest of cells and tissues – Part 2

ESS No. 2

Short test No. 2

Preparation of seminar theses including individual consultations with the teacher or recommended experts

Final test

Presentation and archivation of seminar theses

Certificate of completion of the course

ESS – electronic study support

Action in case of success

Action in case of failure

Course prerequisites

ESS No. 1

ESS No. 2

Introduction
Editing, reviewing and address of the course

Editing of English was performed by Eureka Science Ltd., Dubai, United Arab Emirates

The course was reviewed by
Prof. B. Fuller, MD.-, Ph.D.
University College, London. United Kingdom

Ass. Prof. L. Klein, MD, Ph.D.,
Dept of Surgery University Hospital Hradec Králové, Czech Republic

The course was published in the Mefanet Portal in 2016: https://mefanet.lfhk.cuni.cz/index-en.php
Publication in the Mefanet Portal
Aim of the course

1. To make possible for the student:
2. 1. To obtain current and regularly updated information on the theoretical basis of the subject supplemented by examples from the practice of the tissue establishment.
3. 2. To obtain skill in preparation and presentation of seminar theses
Quantification of the aim

The student must complete the knowledge tests:
In the short he/she must answer correctly at least 3 questions from 5 ones selected randomly from the bank of questions
In the final test he/she must answer correctly at least 10 questions from 15 ones selected randomly from the bank of questions (8 questions belonging to the first, 7 to the second part of the main topic)
All questions are based on selection of only one correct answer from 4 options, if it is not specified otherwise
Study materials and bank of questions

The study materials are divided to obligatory and optional and are represented by:

- PPT presentations
- Full texts prepared at the authors workplaces
- Audio and video presentations
- List of recommended references and websites

The bank of questions consists of 22 questions covering the first part of the course and 20 questions covering the second one.
<table>
<thead>
<tr>
<th></th>
<th>Electronic study supports</th>
<th>Published texts</th>
<th>Audio and video presentations</th>
<th>Website addresses</th>
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<tbody>
<tr>
<td>First Czech version</td>
<td>1/0</td>
<td>1/0</td>
<td>1/0</td>
<td>0/1</td>
</tr>
<tr>
<td>First English version</td>
<td>2/0</td>
<td>1/0</td>
<td>1/0</td>
<td>0/0</td>
</tr>
<tr>
<td>Advanced English version</td>
<td>2/0</td>
<td>0/0</td>
<td>1/0</td>
<td>0/2</td>
</tr>
</tbody>
</table>
## Content of electronic study supports

<table>
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<th>First Czech version</th>
<th>First English version</th>
<th>Advanced English version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of slides with text</td>
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<td>58</td>
<td>66</td>
</tr>
<tr>
<td>Total number of static pictures</td>
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<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Total number of references</td>
<td>1</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>
Discussion and conclusions

- The previous experience showed that the e-learning course may be a suitable support of the elective subject both in a Czech and English version.
- The students accepted the new form of learning better than we expected.
- In construction of the new version the parts covering practical aspects were enlarged (donor suitability, technique of harvest, laboratory testing etc.).
Examples from the practice of the tissue establishment
Discussion and conclusions

- The experience from construction of the advanced English version was used in upgrading the first Czech version of the course.
- We expect that this new version aimed at donation and harvesting issues will have a good potential of use in teaching clinical subjects.
Financial support of the course

- Czech version was supported by the project:
  - Innovation and development of the study programme general medicine at the Medical School Hradec Králové by means of information technologies (IT Medik) - CZ.1.07/2.2.00/15.0164

- There was not any special support for the English version. The project of support the study programmes in English is in the preparation, however.
Acknowledgement

- The authors wish to thank Ass Prof. J. Hanus, Ph.D. Head of the Chair of Biophysics and his team for the support in preparation of courses and the reviewers for valuable advice.
References


Měřička, P., Vít, P.: První zkušenosti s použitím audiovizuálního programu na praktických cvičeních z anatomie Sbor. věd prací LFKU v Hradci Králové, Suppl. 17, 1974, p. 207-216

References

References