Background: Teaching of theoretical and practical first aids are important courses for medical sciences students. If these courses are taught with Evidence Based Medicine (EBM), they will be learned better by students. The objective of this study was the determination of the effect of evidence based medical education on learning of first aids.

Methods: This study had been performed in planning of educational course, as across-sectional study. The course was in accordance with the Iran’s Ministry of Helth Curriculum for teaching first Aids to Medical Students. The study was performed in Mashhad University of Medical Sciences in 2011. Medical students randomly devided to two groups. In group 1 first aids was taught in traditional style. The students' score in final exam was computed between 2 study groups.

Results: The mean score of theoretical first aids in group 1 was 18.83 ± 1.16, the minimum was 16.50 and the maximum was 20, in group 2, it was 19.28 ± 0.40, the minimum was 18.25 and the maximum was 20 with t = -1.563 and P = 0.134 without any significant differences. The mean theoretical first aids score of two groups were not significantly different (group1: 18.25 ± 1.16 min 16.50 max 20; vs. group2: 19.28 ± 0.40 Min: 18.25 Max: 20, t = -4.52 P<0.001). The mean grade of practical first aids in group 1 was 18.88 ± 0.94, the minimum was 17 and the maximum was 20, in group 2 it was 19.92 ± 0.23, minimum 19 and maximum 20 with t =-4.315 and P with significant differences.

Conclusion: Evidence based medical education might beneficial for the learning of practical and some of subject of theoretical first aids.

Keywords: Evidence based Medical Education, Theoretical First Aid education, Practical First Aid education, Occupational Health
INTRODUCTION

The most important task in Medical universities is students' education according to the newest and best references. One of the new and beneficial educational methods in medical sciences is evidence based medical education. This method is planned by searching about the evidences in scientific websites and journals (1,2). Evidence based medicine(EBM) is very useful in clinical medical education specially for medical students. In some studies, this fact had been demonstrated, for example for having a better educational session such as morning report, they divided this educational session in 4 or 5 sections according to evidence based searching. Solving the problem with this method, was easier than before (3-5). One part of this session was making a question about the medical sciences subject and another part was the presentation of searching the result about previous session subject. These results were presented by medical sciences students. First aids is one of the main courses for medical sciences students. First aids is presented in theory and practice, but the use of a new scientific educational method can make it interesting and more useful. If students have the chance to participate in teaching by answering the questions and searching about the subject, they will have better, more perfect learning, easier memorization and fast reaction in the real places.

Davies P. had introduced the evidence based teaching (5). Wolf F.M. had shown the effectiveness of cumulating of evidence based medicine and evidence based education(8). In another study; Belfield C, Thomas H, Bullock A, Eynon R. had demonstrated measuring the effectiveness for best evidence medical education (9). MacLennan A.H, Sturdee D.W. had determined the usefulness of evidence-based labeling for some medicine (10).

In some studies educational standards had been emphasized, the main items of these standards are curriculum, course plans and educational methods (11,12). In the curriculum of occupational health real places such as work places, factories and industries had been mentioned (13). By reviewing the curriculum and designing new course plans, professors can use evidence based education in methods of teaching in the special part of course plans forms (14-16). In another study, the effect of evidence based medicine in primary care by family physicians had been demonstrated (17).

Teaching of theoretical and practical first aids is important for medical sciences students. If these courses are taught practically and properly, they will be learned better by students. Teaching with new educational methods such as evidence based medical education can help better learning (18).

The objective of this study was determining the effect of evidence based medical education on learning first aids.

METHODS

This study has been performed as a cross-sectional study from 1389 solar year to 1390 on occupational health students. Group 1 included 18 students and group 2, 24 students. Course plans had been written according to the curriculum of Health Ministry website.

For group 2, the teaching of theoretical and practical first aids was according to EBM but not for group 1. According to these, both groups had theoretical and practical first aids from 8 to 10 and 10 to 12 in a day. Each chapter had three parts theoretical, practical, and evidence based medical education by using the educational and scientific websites and journals. A question was asked from the students about the subject and one or two students searched for the answer for the next session. At the beginning of the next session; the students who had searched about the subject spoke what she or he had found in the related journals and websites, such as Health and Safety Executive, Occupational Safety and Health Administration, International Labor Organization (19-21).

Session one: primary care, Session two: air ways, Session three: artificial breath, Session four: chest compression, Session five: control of bleeding, Session six: fracture, Session seven: foreign body, Session eight: burn with fire, Session nine: burn with chemicals, Session ten: heat and cold. Each session had questions asked from students and discussions held among them during the classes and also a quiz was taken at the end of the class.

The final exam of the two groups were at the same level, these tests were prepared by professors opinions for correction and validity and have a pilot study with 0.85 correlation for reliability in a sample of students.

The inclusion criterion was entering university in the educational year of 1389 _90 in the field of occupational health and exclusion criteria were students from other entrance years or other fields.

Data had been gathered in SPSS 11.5 and analyzed for the calculation of means, standard deviation, t-test and P<0.05. In research ethics; author got oral satisfaction from participants and told that cumulative data has been used, without mentioning the of the students.

RESULTS

The total grade of theoretical first aids was 18.83±1.16, (min: 16.5 Max: 20) in group 1 and 19.28±0.40 (Min: 18.25 Max: 20) in group 2 with no significant difference (t=0.05).

The total grade of practical first aids was 18.88±0.94 (Min: 17 max: 20) in group 1 and 19.92±0.23 (Min: 19 Max: 20) in group 2. They were significantly different (t=4.515, P=0.001)

Table 1 shows the comparison of grades in theoretical first aids between the two groups.

Table 2 shows the comparison of grades in practical first aids between the two groups.

DISCUSSION

According to the results; the learning levels had been promoted in teaching with evidenced based medical education specially for practical first aids with significant difference.

In group 2 of theoretical First Aids, the grades of Artificial Breath, Fracture, Burn with Chemicals were significantly higher than group 1.
In group 2 of practical First Aids, the grades of Primary Care, Air ways, Artificial Breath, Cardiac Compression, Control of Bleeding, Fracture, Foreign Body, Burn with Chemicals, Heat and Cold were significantly higher than group 1.

In group 2, the grades of other sections of theoretical First Aids and the grades of other chapters of practical First Aids were better than group 1 but did not have any significant differences.

According to the results, the grade of practical first aids and many sections of theoretical course had been increased with the evidence based medical education, the same as the results of the study on students' learning with the use of this method (4,17).

Evidence based medicine is useful in clinical medical education specially for medical students. In some studies, EBM have been successfully used in holding educational sessions such as journal clubs and morning reports (1,4,5). Evidence based medicine (17) and evidence based care had positive effects on perfection and updating clinical care. The course of first aids is one of the important courses for medical sciences students. First aids in working place is presented in theory and practice for occupational health students and by the use of evidence based medicine education it can become more beneficial. In this method students participate by searching the subject (6-8), therefore they will have a better comprehension of the subject and learn more perfectly (9,10).

**Table 1: The comparison of grades in different subjects of theoretical first aids between the two groups (P<0.05)**

<table>
<thead>
<tr>
<th>subject</th>
<th>group 1</th>
<th>group 2</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary care</td>
<td>1.86±0.23</td>
<td>1.98±0.10</td>
<td>2.054-t: P:0.052</td>
</tr>
<tr>
<td>Air ways</td>
<td>1.88±0.21</td>
<td>1.97±0.15</td>
<td>t:1.383: P:0.177</td>
</tr>
<tr>
<td>Artificial breath</td>
<td>1.75±0.30</td>
<td>1.97±0.10</td>
<td>t:2.890: P:0.009*</td>
</tr>
<tr>
<td>Chest compression</td>
<td>1.79±0.36</td>
<td>1.97±0.15</td>
<td>1.951-t: P:0.064</td>
</tr>
<tr>
<td>Control of bleeding</td>
<td>1.69±0.38</td>
<td>1.88±0.29</td>
<td>t:1.696: P:0.100</td>
</tr>
<tr>
<td>Fracture</td>
<td>1.79±0.32</td>
<td>1.98±0.10</td>
<td>t:2.388: P:0.027*</td>
</tr>
<tr>
<td>Foreign body</td>
<td>1.83±0.28</td>
<td>1.97±0.10</td>
<td>1.937-t: P:0.066</td>
</tr>
<tr>
<td>Burn with fire</td>
<td>1.87±0.27</td>
<td>1.94±0.16</td>
<td>t:1.123: P:0.268</td>
</tr>
<tr>
<td>Burn with chemicals</td>
<td>0.96±0.12</td>
<td>1.82±0.25</td>
<td>2.116-t: P:0.045*</td>
</tr>
<tr>
<td>Heat and cold</td>
<td>1.88±0.21</td>
<td>1.97±0.09</td>
<td>t:1.585: P:0.128</td>
</tr>
</tbody>
</table>

**Significant P Value***

**Table 2 – The comparison of grades in different subjects of practical first aids between the two groups**

<table>
<thead>
<tr>
<th>subject</th>
<th>group 1</th>
<th>in group 2</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary care</td>
<td>1.66±0.38</td>
<td>2.00±0</td>
<td>t:9.220: P:0.001*</td>
</tr>
<tr>
<td>Air ways</td>
<td>1.69±0.51</td>
<td>2.00±0</td>
<td>t:-2.500: P:0.023*</td>
</tr>
<tr>
<td>Artificial breath</td>
<td>1.63±0.47</td>
<td>1.98±0.10</td>
<td>t:-2.974: P:0.008*</td>
</tr>
<tr>
<td>Chest compression</td>
<td>1.61±0.50</td>
<td>2.00±0</td>
<td>t:3.289: P:0.004*</td>
</tr>
<tr>
<td>Control of bleeding</td>
<td>1.52±0.49</td>
<td>1.94±0.16</td>
<td>t:-3.372: P:0.003*</td>
</tr>
<tr>
<td>Fracture</td>
<td>1.62±0.48</td>
<td>2.00±0</td>
<td>t:-3.267: P:0.005*</td>
</tr>
<tr>
<td>Foreign body</td>
<td>1.71±0.43</td>
<td>2.00±0</td>
<td>t:2.808: P:0.012*</td>
</tr>
<tr>
<td>Burn with fire</td>
<td>1.72±0.46</td>
<td>1.95±0.17</td>
<td>t:-1.994: P:0.060</td>
</tr>
<tr>
<td>Burn with chemicals</td>
<td>1.66±0.45</td>
<td>2.00±0</td>
<td>t:3.117: P:0.006*</td>
</tr>
<tr>
<td>Heat and cold</td>
<td>1.74±0.43</td>
<td>2.00±0</td>
<td>t:2.505: P:0.023</td>
</tr>
</tbody>
</table>

* Significant P Value
Also there are studies with the same results such as ours; Bligh J. and Brownell A. had shown the importance of evidence in medical education(6). Mennin S.P and McGrew M.C. had demonstrated the effectiveness of synergy for teaching and learning with evidence medical education (7). According to educational standards, the main items in these standards are curriculum, course plans and educational methods (11,12).

Innovation in teaching methods is important in medical sciences education. According to the previous studies this work can elevate the learning. Schools may need workshops for introducing these methods to faculty members.

By reviewing the course plans, university professors may supply the evidence based education in methods of teaching (14-16) but it seems that introduction of the new and related references must be and advanced search strategies necessarily introduced to educators (17,18).

In this study, the students were perfectly satisfied with this method. They could participate and be active in classes and had experience in searching in medical sciences websites and journals. For example first aids in work places from occupational health and medicine sites such as Health and Safety Executive, Occupational Safety and Health Administration, International Labor Organization (19-21).

This study had a few limitations; the number of students and two entrance years of the university, lack of searching in journals and Internet. Another study is recommended with more students, from one entrance exam year, and the use of new educational journals and scientific websites.

Conclusion

Evidence based care education was good for the learning of practical and many sections of theoretical first aids. In this study was recommended the evidence based medicine was recommended for teaching First Aids.

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