



## Surgery Of Combined Lung And Liver Echinococcosis

**Murtazaev Zafar Israfulovich<sup>1\*</sup>, Baysariyev Shovkat Usmonovich<sup>2</sup>, Sherbekov Ulugbek Akhrarovich<sup>3</sup>, Bobokulov Azamat Uktamovich<sup>4</sup>, Shodiyarova Hilola Janonovna<sup>5</sup>**

<sup>1\*</sup>Department of General Surgery, Samarkand State Medical University, Samarkand, Uzbekistan, [murtazayev.zafar1959@gmail.com](mailto:murtazayev.zafar1959@gmail.com) ORCID: 0000-0002-6342-5212

<sup>2</sup>Department of General Surgery, Samarkand State Medical University, Samarkand, Uzbekistan, [baysariyev.shovkat1978@gmail.com](mailto:baysariyev.shovkat1978@gmail.com) ORCID: 0000-0002-2776-3003

<sup>3,4,5</sup>Department of General Surgery, Samarkand State Medical University, Samarkand, Uzbekistan.

**\*Corresponding Author: Murtazaev Zafar Israfulovich**

\*Department of General Surgery, Samarkand State Medical University, Samarkand, Uzbekistan, [murtazayev.zafar1959@gmail.com](mailto:murtazayev.zafar1959@gmail.com) ORCID: 0000-0002-6342-5212

### *Annotation*

This work includes the results of surgical treatment of 112 patients with combined lung and liver echinococcosis operated at the General Surgery Clinic of the Samarkand Medical University.

The clinical material is divided into three groups: in the first group (control), 36 (32.14%) patients underwent surgical interventions on the lungs and liver through separate wide accesses. At the same time, 34 (94.44%) patients underwent surgery in stages with an interval of 4-6 weeks, 2 (5.56%) – echinococcectomy from the lungs and liver was performed simultaneously with separate accesses; In the second group, 29 (25.89%) patients had echinococcal cysts removed from the right lung and liver simultaneously through thoracophrenolaparotomy; In the third group, 47 (41.97%) patients had cysts removed from the lungs and liver in stages. At the same time, in 35 (74.47%) cases, at certain stages of echinococcectomy, mini-accesses developed by us were used in combination with video assisted surgery, and in 12 (25.53%), all thoracic and abdominal accesses were performed using only mini-incisions. Surgical interventions on the lungs and liver were performed on 7 patients through separate mini-accesses simultaneously, and 5 patients had cysts removed from the lungs and liver in stages with an interval of four weeks.

The use of minimally invasive approaches and simultaneous operations contributed to a reduction in early postoperative complications from 13.89% (control group) to 9.21% (main group), i.e. by 2 times.

CC License CC-BY-NC-SA 4.0	<i>Key words: echinococcosis of the liver, echinococcosis of the lungs, laparoscopic echinococcectomy, minilaparotomic echinococcectomy, laparotomic echinococcectomy.</i>
-------------------------------	--

## INTRODUCTION

To date, surgical placement remains the main method of treating echinococcosis. Although there are many works concerning alternative conservative therapy for echinococcosis by prescribing albendazol and vermoz, however, clinical practice shows that the conservative method of treating echinococcosis is not highly effective [3, 6, 7, 9, 16].

In relation to the cyst itself, some authors adhere to radical tactics and consider pericystectomy and resection of the organ, in which the echinococcal cyst is removed along with the fibrous capsule, which is the prevention of recurrence of echinococcosis. At the same time, there is no need to open the cyst and remove its contents, therefore, the germinal elements of the parasite do not spread into the wound and abdominal cavity. This significantly reduces the number of postoperative complications and mortality [1, 5, 10].

In recent years, quite often there have been works devoted to the treatment of echinococcosis using endovisual and minimally invasive technologies: laparoscopic and thoracoscopic echinococcectomy, puncture treatment under the supervision of ultrasound and CT [3, 6, 10, 12, 17] However, the expediency, effectiveness and safety of using these technologies are often contradictory and based on a small number of observations. In order to achieve high results of surgery for echinococcosis, many different techniques are used in open surgery. However, they do not fully satisfy surgeons, since the frequency of postoperative complications remains high and reaches up to 40% [4, 7, 8, 12,].

There are still questions in determining the names of certain surgical interventions performed in echinococcosis and indications for certain surgical interventions, depending on the location of the cyst, its depth, the stage of development of the parasite, size, etc.

## MATERIALS AND METHODS

This work includes the results of surgical treatment of 112 patients with combined lung and liver echinococcosis operated in general surgery at the Samarkand Medical Institute. The age of the patients ranged from 5 to 76 years. The distribution of patients into age groups showed that 91 (81.25%) of patients were of working age. 25 (22.32%) of the patients were residents of the city, 87 (77.67%) were residents of the village. In addition to the clinical examination, the main diagnostic method was chest X-ray and computed tomography. With atypical clinical and radiological signs, fibrobronchoscopy (detection of endobronchial whitish-yellow or white gelatinous membrane) was used to diagnose patients. Using computed tomography (CT) of the chest, oval or spherical opacities were observed in the lungs. CT and ultrasound of the abdominal cavity were performed to identify liver cysts.

The clinical material is divided into three groups: in the first group (control), 36 (32.14%) patients underwent surgical interventions on the lungs and liver through separate wide accesses. At the same time, 34 (94.44%) patients underwent surgery in stages with an interval of 4-6 weeks, 2 (5.56%) – echinococcectomy from the lungs and liver was performed simultaneously with separate accesses; In the second group, 29 (25.89%) patients had echinococcal cysts removed from the right lung and liver simultaneously through thoracophrenolaparotomy; In the third group, 47 (41.97%) patients had cysts removed from the lungs and liver in stages.

At the same time, in 35 (74.47%) cases, at certain stages of echinococcectomy, mini-accesses developed by us were used in combination with video assisted surgery, and in 12 (25.53%), all thoracic and abdominal accesses were performed using only mini-incisions. Surgical interventions on the lungs and liver were performed on 7 patients through separate mini-accesses simultaneously, and 5 patients had cysts removed from the lungs and liver in stages with an interval of four weeks.

To eliminate the residual cavity in the lungs, the Bobrov method was used in 126 cases, the Delbe method – 33, the Vakhidov method in 10 and partial atypical lung resection in 4, according to Vishnevsky in 3 cases. To eliminate the residual cavity in the liver, the following methods were used: Delbe in 185 cases, Askerkhanov omentoplasty in 19 cases.

All patients who were diagnosed with combined echinococcosis and operated on (n = 112) were included in the study and the results were statistically processed on a Pentium-IV personal computer using the Microsoft Office Excel-2016 software package, including the use of built-in statistical processing functions. A confidence level of  $P < 0.05$  was taken as statistically significant changes.

In the first group of 36 patients, a traditional approach was used to perform echinococcectomy from the lung – wide intercostal thoracotomy through the V and VI intercostals. Moreover, 10 (27.77%) of them had thoracotomy performed on both sides. At the same time, in the main group of patients, the need to remove cysts from the lung through wide thoracotomy access also arose in 2 (2.73%) patients.

The length of the operative access averaged  $23.2 \pm 2.7$  cm. The time required to perform operational access is  $25 \pm 5.3$  minutes. Total blood loss during surgery was  $125.11 \pm 24.1$  ml.

Complications were observed in 5 (13.88%) patients after echinococcectomy with wide thoracotomy access: 2 had postoperative pneumonia, 1 had exudative pleurisy and 2 had suppuration of the wound.

After echinococcectomy from the lungs, the average length of hospital stay was  $14.2 \pm 2.4$  days.

When performing echinococcectomy from the liver in the first group, traditional laparotomic approaches were used - upper median laparotomy was applied in 23 (63.88%) patients, right subcostal access (Fedorov access) was performed in 8 (22.22%) patients, and 5 more (13.88%) patients had liver cysts removed through thoracophrenolaparotomic access.

In the main group, the need for a wide laparotomy to remove echinococcal cysts from the liver arose in 33 (43.42%) patients: - in 18 (23.68%) upper median laparotomy, in 15 (19.74%) - thoracophrenolaparotomy on the right only to remove cysts from the liver. At the same time, the length of laparotomy access averaged  $23.2 \pm 2.7$  cm, and the time it takes to perform access was  $20 \pm 4.5$  minutes. The total blood loss after laparotomy was  $125.11 \pm 24.1$  ml. The duration of the operation was  $120.36 \pm 20.20$  minutes. The duration of hospital stay after laparotomy was  $12.2 \pm 1.6$  days.

After echinococcectomy from the liver through laparotomy approaches, complications were observed in 3 (9.09%) patients: in 1 – subdiaphragmatic abscess, in 2 – suppuration of the wound.

Thoracophrenolaparotomy was performed in 29 patients, including 26 patients with echinococcosis of the right lung and liver and 3 patients with echinococcosis of both lungs and liver, in whom cysts from the left lung were removed through mini-thoracotomy.

During the incision, the skin, subcutaneous tissue and superficial fascia were dissected. The length of the incision is 25-30 cm– The lateral bundles of the broad muscle and intercostal muscles were dissected against the course of the fibers, and the external oblique and transverse abdominal muscles with the same fascia were dissected along the course of the fibers. The internal oblique muscle dissected against the course of the fibers. During the incision, the parietal pleura, peritoneum and costal arch, as well as the diaphragm, are dissected. The pleural and abdominal cavities were opened. The stages of removal of an echinococcal cyst of the lung and liver did not differ from the traditional one. Most often, the first stage was to remove an echinococcal cyst of the liver.

The choice of intercostal space for thoracophrenolaparotomy depended on the localization of echinococcal cysts in the right lung and liver. Of the 29 patients, 5 (17.24%) had echinococcal cysts located in the upper lobe of the right lung and in the VII-VIII segments of the liver, in 7 (24.13%) patients, cysts were localized in the middle lobe of the right lung and in the right lobe (VI-VII-VII segments) of the liver. A combination of the lower lobe of the right lung and the right lobe (VII-VIII segments) of the liver was detected in 11 (37.93%) patients, multiple lesions of both lobes of the liver and the middle, lower lobe of the right lung were observed in 5 (17.24%) patients, involvement of the upper and middle lobes of the right lung and both lobes of the liver occurred in 1 (3.44%) the patient.

When cysts were localized in the upper and middle lobes of the right lung and in the right lobe of the liver (n=13), surgical access was performed along the VII intercostal space, starting from the posterior axillary line

to the lateral edge of the right rectus abdominis muscle. When cysts were localized in the lower lobes of the right lung and the right lobe of the liver (n=11), an incision was made along the VIII intercostal space, starting from the middle axillary line to the lateral edge of the right rectus abdominis muscle. When echinococcal cysts affected the middle and lower lobes of the right lung and both lobes of the liver (n=5), access was performed along the VII intercostal space, starting from the posterior axillary line reaching the white line of the abdomen. Thus, thoracophrenolaparotomy was performed along the VII intercostal space in 18 (62.09%) patients, and in the remaining 11 (37.93%) access was applied through the VIII intercostal space. At the same time, the length of the operational access was  $30 \pm 4.5$  cm. The time to perform this access was  $30 \pm 5.3$  minutes, and the total blood loss during the operation was  $220.25 \pm 75.7$  ml. The duration of the operation is on average  $230.32 \pm 30.6$  minutes. On the first day after surgery, narcotic analgesics were used 1-2 times a day, and on the next 3-4 days, patients were anesthetized with non-narcotic analgesics. After simultaneous echinococcectomy from the right lung and liver through thoracophrenolaparotomy, complications were noted in 3 (10.34%) patients: 1 – postoperative pneumonia, 1 – exudative pleurisy and 1 more – wound suppuration. The average length of hospital stay after simultaneous echinococcectomy from the right lung and liver was  $12.2 \pm 2.6$  days.

We consider the lack of access to be traumatic, which is indicated by the restriction of movement and the presence of pain in the upper limb on the side of the operation, late activation of patients – for 3-4 days and the need for caregivers, prolonged (for 5-6 days) use of painkillers.

The advantage of access is to create adequate exposure to the right lobe of the liver (segments VII-VIII), as well as to all lobes of the right lung. Access allows for simultaneous echinococcectomy from the above organs. Mini-thoracotomy was performed in 47 patients, and in 4 of them with damage to both lungs and liver, this access was used 2 times, therefore, mini-thoracotomy was used in only 51 cases.

The length of the operative access varied within 5 cm. The time required to perform mini-thoracic access was  $11 \pm 3.6$  minutes. The total blood loss during the operation was  $52.63 \pm 5.26$  ml. The low-traumatic access made it possible to exclude the use of narcotic analgesics in the postoperative period. In the postoperative period, 1 (2.38%) patient had pneumonia.

The total length of stay of patients in the hospital averaged 5.5-1.2 days.

In 11 (23.40%) patients of the main group, echinococcectomy from the liver was performed from a mini-laparotomy access in combination with video assisted surgery. For this purpose, pararectal minilaparotomies were used in 4 patients, oblique in the right hypochondrium in 7 patients.

The access length was up to 5 cm. The time required to perform this access was on average  $10 \pm 4.8$  minutes. The total blood loss during the operation was  $48.36 \pm 5.27$  ml, and the duration of the operation was  $84.2 \pm 18.5$  minutes. In the postoperative period, patients were activated after 8-12 hours and subsequently they did not need the care of caregivers.

The average length of hospital stay was  $5.6 \pm 1.3$  days.

Due to the non-standard localization, the size of cysts, both in the lung and in the liver, as well as taking into account the combined organ damage, for a comparative analysis of the results, we decided to divide the first group, where operations were performed through wide access, into 3 subgroups:

subgroup 1a - patients (n=10), to whom we could currently perform simultaneous removal of cysts, both from the right lung and from the liver through thoracophrenolaparotomy access;

1b subgroup - patients (n=21), for whom we would currently use minimally invasive approaches in combination with video assistance at certain stages of removal of cysts from the lungs and liver;

Subgroup 1b consists of patients (n=5) for whom we would currently use minimally invasive approaches in combination with video assistance at all stages of echinococcectomy.

When conducting a comparative analysis of the results of treatment of patients (n=29) with simultaneous echinococcectomy from the right lung and liver with an identical subgroup of patients (n=10), to whom we could currently perform simultaneous removal of cysts, both from the right lung and from the liver through thoracophrenolaparotomy, we noted the following:

Thoracophrenolaparotomy access does not reduce the traumatic nature of access to the objects of surgical intervention – the lungs and liver. But, in total, the length of the soft tissue incision after wide thoracotomy and laparotomy is on average  $12.2 \pm 2.3$  cm longer.

When performing simultaneous echinococcectomy through thoracophrenolaparotomy approaches, there was a decrease in the time required to perform operative access and the total duration of the operation by an average of 7-10 minutes than when performing traditional laparotomy and thoracotomy approaches combined. And the total duration of the operation decreased from  $263.80 \pm 45.38$  minutes when using traditional accesses in stages to  $230.32 \pm 30.6$  minutes when performing simultaneous echinococcectomy through thoracophrenolaparotomy access.

The total blood loss during the operation did not have significant differences. At the same time, the total blood loss during operations by thoracophrenolaparotomy was  $220.25 \pm 75.7$  ml, whereas in the identical subgroup the blood loss was  $250.22 \pm 48.2$  ml.

The duration of the use of painkillers also decreased by 2 times when performing simultaneous surgical interventions, rather than phased ones. The onset of activation of patients in both subgroups was identical.

When conducting a comparative analysis of the results of treatment of patients ( $n=35$ ), where minimally invasive approaches were used at certain stages of echinococcectomy from the lungs and liver with an identical subgroup of patients ( $n=21$ ), who currently would use minimally invasive interventions at certain stages of removal of cysts from the lungs and liver, the length of the incision of the soft tissues of the thoracic cells and anterior abdominal wall up to 5 cm. and blood loss during operations ranges from  $250.22 \square 48.2$  ml to  $173.47 \square 29.37$  ml.

When conducting a comparative analysis of the results of treatment of patients ( $n=12$ ) who used endovideosurgical technology at all stages of echinococcectomy, with an identical subgroup of patients ( $n=5$ ) who currently would use minimally invasive accesses in combination with video assistance at all stages of echinococcectomy, we noted a decrease in the traumatic nature of access to the object. The length of the incisions decreased from  $46.4 \pm 5.4$  cm to 10 cm, i.e. more than 4 times. The time it takes to perform online access has decreased by an average of 2 times. Total blood loss, in the sum of two phased operations, decreased by an average of 2.5 times and the use of analgesics after each operation in the main subgroup of patients decreased to 2 days, instead of 5 days in the control subgroup.

A comparison of the results of surgical treatment of patients with combined lung and liver echinococcosis in the main and control groups showed that the use of minimally invasive approaches and simultaneous operations contributed to a reduction in early postoperative complications from 13.89% (control group) to 9.21% (main group), i.e. by 2 times.

In the long-term postoperative period, when examining patients of the control group for up to 5 years, ligature fistulas were detected in 3 cases, postoperative hernias were found in 2, postoperative gross deforming scars were noted in 7, abdominal adhesions were detected in 3 observations. These complications were found in only 12 (33.33%) patients. In the main group, only 1 (1.32%) patient had osteomyelitis chondritis of the right costal arch in the long-term period.

All 112 patients underwent postoperative chemotherapy with albendazole at a dose of 12 mg / kg per day for 30 days for 3-5 courses. One of the positive properties of this drug is its low toxicity, which allows its use in fairly long courses with a significantly lower risk of side effects.

Discussion. In diagnostic terms, special attention was paid to ultrasound for the detection of liver cysts and to the localization of cysts in the lung by polypositional radiography. However, in special cases, in order to better visualize and accurately determine the location of the cyst, preoperative MSCT is recommended [14, 17].

In relation to the choice of surgical access for combined echinococcosis of the lungs and liver, depending on the location of the cyst, thoracophrenolaparotomy, transthoracic phrenotomy, separate wide accesses and also separate mini-thoracotomy and laparotomy accesses are used [3, 5, 6, 10, 12]. According to our data, if possible, it is necessary to perform separate mini-accesses or a combination of wide laparotomies at the stages. Pulmonary localization of cysts, in almost all cases, they tried to operate through mini-accesses. The stage was determined depending on the size of the cysts and the presence of complications.

There are conflicting opinions in the literature regarding the echinococcal cyst itself and the organ, as well as the performance of organ-preserving or radical surgery. Someone adheres to radical tactics and there are supporters of conservative surgical tactics [1, 4, 7, 10, 12]. In our opinion, the concept of "radicality" in echinococcosis is conditional, resection of a part of an organ or extirpation of a cyst does not exclude the

Available online at: <https://jazindia.com>

presence of small cysts in other parts of the organ. Based on the above, we tried to perform organ-preserving operations in our research, since it is safe, simple and effective, meets all criteria for surgical treatment of echinococcosis and preserves healthy tissues [9, 12].

The next goal of our study was to prevent relapses and secondary echinococcosis. All patients were prescribed chemotherapy in the postoperative period. Albendazole reduces the recurrence rate [4, 7, 13, 15], therefore, it was started to be prescribed a month after surgery and continued for 28-30 days weeks. The course of treatment included 3-5 courses. We consider it inappropriate to use chemotherapy in the preoperative period, since there is no corresponding sufficient time in the preoperative period and, on the other hand, monthly chemotherapy does not completely inhibit the process [16].

## CONCLUSION

Thus, endovisual technology allows operations to be performed through minimally invasive accesses both in the lungs and adjacent locations of liver cysts and does not lead to an increase in the number of postoperative complications in comparison with operations performed by traditional thoracotomy and laparotomy accesses. The authors stated that there are no competing interests.

## REFERENCES

1. Ахмедов И.Г. Анализ отдаленных результатов хирургического лечения эхинококкоза: методологические аспекты. *Анналы хирургической гепатологии*. 2016; 21 (4): 113–118. <https://doi.org/10.16931/1995-5464.20164113-118>.
2. Ахмадалиев С.М., Кадиров Ш.Н. Принципы и современные методы обработки полости эхинококковой кисты. *Re-health Journal*. 2020; 3-2(7): 163-165. doi: 10.24411/21810443/2020-10141
3. Асланов А. Д., Жигунов А. К., Захохов Р. М. и др. Хирургическое лечение множественного эхинококкоза органов брюшной полости, почек и лёгких // *Хирургия*. 2012. № 10. С. 56–58.
4. Бабакулов К.К., Алиев М.Ж., Каниетов А.К. Химиопрофилактика рецидива эхинококкоза. *Вестник КГМА им. И.К. Ахунбаева* – 2014. - №4. – С. 162-165.
5. Беньян А.С., Иванов С.А., Медведчиков-Ардия М.А., Панфилов К.А., Кенарская М.В. Симультанное лечение эхинококкоза легкого и печени. // *Вестник медицинского института РЕАВИЗ №1(37)*, 2019; С 149-154.
6. Ветшев П.С., Мусаев Г.Х., Фатьянова А.С. Эхинококкоз: основы диагностики и роль миниинвазивных технологий (обзор литературы). *Анналы хирургической гепатологии*. 2015; 20 (3): 47–53. <https://doi.org/10.16931/1995-5464.2015347-53>.
7. Назыров Ф.Г. [и др.] // Химиотерапия и проблемы рецидивного эхинококкоза печени *Анналы хирургической гепатологии* . - 2011. Т.16, № 4.- С.19 - 24.
8. Одишелашвили Л.Г., Зурнаджянц В.А., Одишелашвили Г.Д., Пахнов Д.В. Выбор способа хирургического лечения остаточных полостей после эхинококкэктомии. *Астраханский медицинский журнал*. 2020; 15(2): 6-12. doi: 10.17021/2020.15.2.6.12
9. Черноусов А. Ф., Мусаев Г. Х., Абаршавина М. В. Современные методы хирургического лечения сочетанного эхинококкоза лёгких и печени // *Хирургия*. 2012. № 7. С. 12–17.
10. Шевченко Ю. Л., Назыров Ф. Г. *Хирургия эхинококкоза*. М. : Династия, 2016. 288 с.
11. Шодмонов И.Ш., Разиков Ш.Ш. Эпидемическое значение эхинококкоза. *Современные проблемы науки и образования*. 2015; 2(1).
12. Эшмуратов Т.Ш., Сундетов М.М., Ширтаев Б.К. Усовершенствование лечебной тактики сочетанного эхинококкоза правого лёгкого и печени. *Вестник хирургии Казахстана*. 2015; 2: 35-38.
13. Fattahi Masoom S.H., Lari S.M., Fattahi A.S., Ahmadnia N., Rajabi M., Naderi Kalat M. Albendazole therapy in human lung and liver hydatid cysts: a 13-year experience. *Clin. Respir. J.* 2018; 12 (3): 1076–1083. <https://doi.org/10.1111/crj.12630>.

14. Gocan H., Surd A., Dobrescu I., Pop E. The role of ultrasonography in Albendazole treatment of hydatid liver cyst monitoring in children — three case reports // *Med. Ultrason.* 2010. Vol. 12, № 4. P. 340–344.
15. Labsi M., Soufli I., Khelifi L., Amir Z.C., Touil-Boukoffa C. A preventive effect of the combination of albendazole and pomegranate peel aqueous extract treatment in cystic echinococcosis mice model: an alternative approach. *Acta Trop.* 2019; 197: 105050. <https://doi.org/10.1016/j.actatropica.2019.105050>.
16. Nazligul Y., Kucukazman M., Akbulut S. Role of chemotherapeutic agents in the management of cystic echinococcosis // *Int. Surg.* 2015. Vol. 100, № 1. P. 112–114. Doi: 10.9738/INTSURG-D-14-00068.
17. Tamarozzi, F., Nicoletti, G.J., Neumayr, A., Brunetti, E. (2014). Acceptance of standardized ultrasound classification, use of albendazole, and long-term follow-up in clinical management of cystic echinococcosis: a systematic review. *Current opinion in infectious diseases*, 27(5), 425–31. Epub 2014/08/08, pmid:25101556.
18. Ejam, S.S., Saleh, R.O., Catalan Opuencia, M.J., ...Karampoor, S., Mirzaei, R. Pathogenic role of 25-hydroxycholesterol in cancer development and progression **Future Oncology** 2022, 18(39), pp 4415–4442
19. Boudlaie, H., Boghosian, A., Ahmad, I., ...Wekke, I.S., Makhmudova, A. Investigating the mediating role of moral identity on the relationship between spiritual intelligence and Muslims' self-esteem **HTS Teologiese Studies / Theological Studies**, 2022, 78(4), a7570
20. Makhmudova, A.N Factors and means of the content of legal socialization of the individual in modern civil society *Journal of Advanced Research in Dynamical and Control Systems*, 2020, 12(7 Special Issue), страницы 2038–2046
21. Nugmanovna, Makhmudova Aziza THE ROLE AND SIGNIFICANCE OF SOCIAL AND LEGAL CONTROL IN THE LEGAL SOCIALIZATION OF THE INDIVIDUAL IN THE MODERN CIVIL SOCIETY, *INTERNATIONAL JOURNAL OF EARLY CHILDHOOD SPECIAL EDUCATION*, [https://www.int-jecse.net/media/article\\_pdfs/3783-3791.pdf](https://www.int-jecse.net/media/article_pdfs/3783-3791.pdf) Volume 14 - Issue 2 DOI: 10.9756/INT-JECSE/V14I2.410