require infrastructure beyond the means of endemic areas. The standard treatment is toxic, costly and needs a prolonged series of daily injections, the efficacy is variable and resistance is rapidly developing in many countries. Individuals upon cure of CL lesion induced by natural infection or leishmanization (LZ) are protected against further lesion development, induction of protection in experimental model of leishmaniasis is achieved, most of the *Leishmania* parasites are easily cultured. For all these reasons, in 1980s, global mobilization to develop an effective vaccine against leishmaniasis under GMP/GCP guidelines with support of WHO/TDR was initiated in new world and old world. Several candidate antigens were introduced and a few of the first generation (killed parasite) vaccines were reached to phase 3 trials. The results of efficacy trials in Brazil, Colombia, Ecuador, Iran and Sudan using single and multiple doses of first generation vaccines with or without BCG are safe but not enough immunogenic to protect against *Leishmania* infection. So far no vaccine is available against any form of the disease.

Leishmanization is an inoculation of live virulent *Leishmania major* to a predetermined part of the body to induce a lesion similar to natural infection. Leishmanized individuals are protected against further natural infection which might be multiple lesions in exposed parts of the body such as on the face. LZ was practiced in Asian countries for centuries and originally exudates of an active lesion was used to scratch on buttocks of susceptible individuals. When culture media was developed, *Leishmania* promastigotes from culture media were used for inoculation in the early 1930s. LZ was practiced in Uzbekistan, Israel and Iran. In the 1980s, as a preventive measure, massive LZ was performed in Iran in which more than 2 million soldiers and children were leishmanized. The results of LZ in different endemic regions showed the LZ is the most effective control measure against CL, but accompanies limitations. Endemic countries need to resume LZ and research on LZ issues should be prioritized to standardize *Leishmania* stabilates, develop well defined serum free media and possibly lyophilize *Leishmania*. To facilitate vaccine development, LZ should be used as live challenge to evaluate candidate vaccines. The objective of the current presentation is to overview history of *Leishmania* vaccines and LZ.

CUTANEOUS LEISHMANIASIS TREATMENT: A BRIEF OVERVIEW

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Human infection with *Leishmania* parasites presents several different clinical forms of diseases; Cutaneous Leishmaniasis (CL), the most common form of the disease and Visceral Leishmaniasis (VL) which is the fetal form of the disease. Due to the diversity of epidemiological characteristics, specific to each species and its environment, vector and reservoir control are impractical, costly and usually requires political commitment and infrastructures beyond the means of the countries suffering most from this disease and as such the disease is expanding to new foci and the incidence rate is increasing in some of the endemic areas. CL is usually a self healing lesion but leaves a disfiguring scar which leads to stigma, isolation and barrier to marriage, especially for girls. In case of severe forms of CL such as recidivans and non healing forms no efficacious treatment is available. Pentavalent antimonials (Sb^{+5}) have been introduced since 1930s and still is the first-line WHO recommended treatment for all types of CL. Antimonials require multiple injections which is uncomfortable and painful, so full recommended course is not tolerated by most of the patients and resulted in low compliance. The efficacy of antimonials depends upon the *Leishmania* species and usually is low and resistant is reported. Moreover, Antimonials are contraindicated in pregnancy, heart/renal failure, hepatic disease and diabetes and accompanies serious side effects which in the worst scenario, it might cause death if not carefully monitored. CL patients do not need hospitalization so the cost of treatment is not high, but still is not affordable for most the endemic areas. Development of safe and efficacious drugs is urgently needed. There is no global interest in drug development against CL, so endemic countries, NGOs and international agencies need to invest. Clinical trials to assess the efficacy of various modalities on leishmaniasis have been carried out in different parts of the world, but mostly suffer from inadequacies related different issues such as design, sample size, endpoints and etc. Currently, in addition to antimonials several lines of drugs like Ambisome (liposomal form of Amphotericin B), Miltefosine and Paromomycine are available for the treatment of VL but not CL. Clinical trials on CL using chemotherapy, physical therapy, traditional medicine and immunotherapy have been published. In this presentation, various clinical trials of

leishmaniasis will be discussed with emphasis on clinical trials on CL and especially the ones which have been completed in Iran including the efficacy of oral Itraconazole on CL induced by *L. major*, topical Paromomycine on the treatment of lesions caused by *L. major*, Miltefosine in the treatment of CL caused by *L. major* and *L. tropica*, combination of Glucantime and imiquimod on the treatment of CL induced by *L. tropica*. Current efforts to develop advanced formulations using nano technology with different drugs such as nano liposomal forms of Amphotericin B, Paromomycine etc and the related clinical trials will be discussed.

MINIIMAL INVASIVE SURGICAL METHOD OF TREATMENT OF LIVER ECHINOCOCCOSIS

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Objective: The aim of our investigation is to improve surgical outcome of the patients with EL, using minimal invasive surgery and postoperative chemotherapy.

Material and Methods: Since (from 1998 till current days) in the surgical department of the hospital of Samarkand State medical institute has been introduced a video assisted operation. This introduction will be cause change to certain surgical procedures in hydatid disease of liver and lungs. During 1996-1998 years, before introduction video assisted operation 69 patients (32 male and 37–female) with plural EL were operated traditionally by using laparotomic accesses. Echinococcectomy (EE) using minimal invasive surgery has been performed from 2010 to 2012 for 76 patients (36 male and 40-female) with plural EL. In total (n=145) men were 68 (46.9%), women – 77 (53.1%).

Results: Diagnosis by ultrasonography has important place in the detection of the disease. CT examination has been used in 5 (2.7%) cases. After using traditional laparotomic accesses in the surgical treatment 69 patients founded by us the followings: traumatism of approach (more then 22 cm), late activity of patients (24-48 hours after operation), prolonged and frequent anesthetization (3-4 time, during 3-5 days), long hospitalization period (more than 11 days) and cosmetics defects. Postoperative complications such as suppuration of cyst (n=4), cystobiliar fistula (n=3), rupture of cysts to biliary tracts (n=2), rupture in abdominal cavity (n=1) were found out in 9 (13.4%) patients. Recurrence of disease exposed in 8 (11.6%) patients.

After introduction video assisted operation different variants of echinococcectomy (EE) were applied to 76 patients depending on size, localization and condition of cysts. Only in 9 (11,8%) patients laparoscopic EE from the liver has been performed. But, in these cases conversion has been performed in 3 (33.3%) patients with transfer to minilaparotomy. 67 (36.2%) patients received of EE from the liver through minilaparotomic approach using “Mini-assist” instruments. Technical simplicity of the operation in comparison with pure laparoscopic EE made it possible to use this operation more often. Shortcoming of this method is difficulties performing the operation, with the cysts located on inaccessible segments of the liver. There were no complications in the postoperative period. The patients stay in the hospital after such operations was 5.8±1.4 days. So, single cysts, till 15 cm in diameter, with localization in the II,III,IV,V segments and partially in the VI segment, can be removed through minilaparotomic approach. It should be noted that after minimal invasive surgery activity of patient was in 6-12 hours after operation and they don’t need long (only 1-2 time) and frequent (only 1-2 days) anesthetization.

All patients of this group have undergone the course of chemotherapy (Albendazol 12 mg/kg/day) in the postoperative period (2 or more course) depending on the number, condition and size of cysts. No recurrences have been noticed in the followed-up patients.

Conclusion: Comparative analysis of patients who treated with traditional method and video assisted operation showed that using of minimal invasive surgery in the treatment of EL made it possible to avoid extensive traumatic approaches, to decrease painful syndrome and expenditure of medicines in the postoperative period, to diminish the terms of rehabilitation of patients, to receive a good cosmetic effect. Application of these interferences excludes opportunity of development of postoperative hernias, ligature fistulas, rough deforming cicatrexes and commissure disease of the abdominal cavity.