

# **ECHINOCOCCOSIS IN TURKEY**

# Echinococcosis in Turkey

- Cystic echinococcosis (CE) is seen in overall Turkey, while sporadic alveolar echinococcosis (AE) is reported mostly from Eastern regions.
- Twenty seven patients were reported to have liver transplantation due to AE in the last 5 years, in Erzurum.

# Prevalence of CE

- The data about the prevalence of CE may not be considered reliable enough in many countries, as most of them were collected from the limited hospital records.

- Radiological imaging, serological tests, and pathological examination of biopsy materials are generally used in individual diagnosis, while ultrasonography (US), serology, and chest radiology may be used in community-based screening surveys of CE.

# Studies

- A four staged study in primary school children was planned to work, on the epidemiology of CE in Manisa, a province located in West Turkey.

# Manisa Province



# First Stage

- Carried out to evaluate the efficacies of portable US, serology and chest X-ray in three villages of Manisa.
- Of the 630 children examined, hepatic CE was detected in two cases (0.3%) by US.
- US was found to be more reliable and simple compared to others.



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Short communication

## A discrepancy between cystic echinococcosis confirmed by ultrasound and seropositivity in Turkish children

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# Second Stage

- Portable US was used alone in another two villages.
- Three of 575 children (0.5%) were diagnosed with CE (two hepatic and one renal involvement) by US alone.



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Parasitology International 55 (2006) 273–275



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The value of ultrasonography alone in screening surveys of cystic echinococcosis in children in Turkey

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İpek Östan <sup>c</sup>, Ülgen Z. Ok <sup>a</sup>

# Third Stage

- An epidemiological province-based field study with portable US was performed for the first time, using sampling method in a province.
- A total of 6093 children from 37 primary schools were selected as the representative sample of the total number of 166,766 children and examined by the US.

# Third stage

- Nine children were diagnosed with CE.
- CE prevalence was found to be 0.15% in primary school children in Manisa.



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A province-based study using sampling method to investigate the prevalence of cystic echinococcosis among primary school children in Manisa, Turkey

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# Fourth Stage

- It is planned to repeat the study at the same schools in ten years' time, in order to evaluate the efficacy of the control programs, since nearly all students involved in this study will be graduated within this period.

# Similar Study

- A similar study \* was performed in Elazığ, a province in East Turkey in which sheep raising is common.
- A representative sample of 2500 primary school children were scanned by portable US, and the prevalence was found to be 0.2% (6/2500).

\*Bakal U et al., Acta Tropica, 2012.

# CE in University Students

- A total of 4275 students from Celal Bayar University, Manisa, Turkey, were screened by ultrasonography (US) and specific antibodies for CE were examined by Western blotting (WB) and ELISA in finger prick blood samples of 2034 of 4275 volunteered students.

# CE in University Students

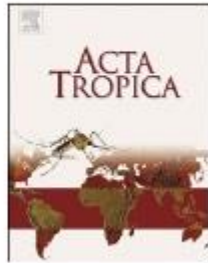
- Six new cases were diagnosed as CE by US, and in addition to these cases, three students were also detected to have been previously operated and pathologically confirmed for hepatic CE.
- The prevalence of CE by US was 0.21% (9/4275) among university students in Manisa.



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## A mass screening survey of cystic echinococcosis by ultrasonography, Western blotting, and ELISA among university students in Manisa, Turkey



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# Results - 1

- Due to the increase in the prevalence with age, one of every 150-200 people is thought to have CE in Turkey; therefore the infection is thought to be an important public health problem in Manisa and also in Turkey.

## Results - 2

- As a reliable, simple, inexpensive and rapid method, portable US was found to be more useful in the diagnosis of liver CE in field studies, than serological tests, which may cause false positivity and discrepancy in results.

# Results – 3

- Chest X-ray is accepted as the best method for lung lesions.

# Results – 4

- Serological tests should be performed in all cases with suspected lesions.

## Results – 5

- WB is rather difficult and not feasible as a mass screening test and may not be effective for confirmation especially in asymptomatic cases.

# Recommendations

- US should be used initially in mass screening surveys for CE followed by confirmation by ELISA for suspected cases.

# Recommendations

- Further examination primarily by chest X-ray followed by computed tomography and/or magnetic resonance imaging, if needed, should be recommended for US negative, ELISA and WB positive individuals who may have non-abdominal cysts.

# Cystic Echinococcosis Symposium 17-18 May 2012 - MANİSA





- Discussion on “What to do to control the infection?”
- We agreed that the “Animal Protection Law” is primarily responsible for the high prevalence
- Worked on the law with an associate professor from Faculty of Law.
- Prepared a report including the list of changes needed and presented to related Ministries.

# Video film

- We produced a short video film on CE.
- It was broadcasted on the local television channels in Turkey.
- The film is available with English subtitles in internet  
([https://www.youtube.com/watch?v=foAaFti\\_13U](https://www.youtube.com/watch?v=foAaFti_13U)).



# Thanks to my team...

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