**Table 1. Patients with tinnitus with rTMS intervention for randomized controlled studies (RCT) with at least 6 months of follow-up**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Comments** | **Time of measurement** | **Secondary**  **Outcome** | **Primary Outcome** | **Site** | **Duration of**  **intervention** | **Inclusion criteria** | **Patients’ Number** | **Number of trial arms** | **Study design** | **Date publi**  **shed** | **Authors** |
| significant reduction of the total score of basic scales that measure tinnitus severity.  reduction was displayed in figures | -before start  -after 2 – 6 – 14- 26 weeks |  | TQ\* modified  THI\*\*  VAS1\*\*\*  VAS2  Goebel & Hiller tinnitus questionnaire | Czech Republic  Psychiatry  Otorhinolaryngology, Neurology,  Radiology Charles University in Prague | 2 weeks | chronic  uni- or bilateral tinnitus  patients of  ~9 years duration  Normal hearing Right handed | 22  20 | 1- Hz rTMS  Sham | randomized, prospective, placebo-controlled | 2010 | Andres et al.18 |
| Tinnitus unchanged.  25% improvement on the TQ. | -before start  -after last session  -after 1 week  -after 1-3-6 months | THI –VAS  STAI\*\*\*\*  Beck Depression Inventory | TQ | Netherland  Otorhinolaryngology University Medical Center Utrecht  &Brain Center | 5 consecutive  days | chronic non-fluctuating tinnitus of 8 months  with some hearing loss | 26  24 | 1 -Hz rTMS  Placebo | RCT block design per group of 8,  double- blind  placebo-controlled | 2013 | Hoekstra et al.19 |
| 32.25% of all patients recovered completely from tinnitus.  27.4% improved to the point where they only had tinnitus at night before sleeping.  In the contralateral group 64.5% improved in comparison to 29% in the ipsilateral group.  No different effect of 1Hz or 25 Hz frequency. | -before start  -after last session  -monthly interval for 10 months | RI and  Hamilton ratings of depression and anxiety | THI  VAS | Egypt  NeuroPsychiatry, Audiology Assiut University Hospital | 2 weeks daily | Right or left ear tinnitus Normal hearing & some hearing loss | 15  16  15  16 | *1- Hz rTMS:*  Ipsilateral  Contralateral    *25 -Hz rTMS:*  Ipsilateral  Contralateral | RCT randomized to four groups | 2010 | Khedr et al.20 |
| 46.7% of patients having ipsilateral stimulation and 51.6% of contralateral showed improvement | -before start  -after last session  -after 1-3-6 months |  | THI  VAS:- loudness awareness annoyance | Korea  Dept Otorhinolaryngology, Research Institute of Rehabilitation | for 5 days | tinnitus localized to poor ear asymmetric hearing impairment  at least 6months & treated  for at least 2 months | 30  31 | 1- Hz rTMS **:**  Ipsilateral  Contralateral | RCT patients were assigned randomly to the ipsilateral or  contralateral | 2014 | Kim et al.21 |
| major changes in the physical & catastrophic domain  40% had a signiﬁcant reduction of tinnitus severity after 5 days and 1, 6 months after treatment of active rTMS | -before start  -after 7- 14- 21days  - monthly interval for 6 months |  | THI  VAS  SPECT\*\*\*\*\* | Brazil  Dept Otolaryngology, Radiology, Psychiatry | 5 consecutive days | uni- or bilateral tinnitus of 3 months duration, normal hearing | 10  9 | 1 -Hz rTMS  Placebo | RCT  Randomized double-blind controlled | 2010 | Marcondes et al.22 |

\*TQ= tinnitus questionnaire

\*\*THI= tinnitus handicapped inventory

\*\*\*VAS= visual analogue rating scores

\*\*\*\*STAI =State-Trait Anxiety Inventory

\*\*\*\*\*SPECT = Single photon emission computed tomography

**Table 2. Mean tinnitus handicapped inventory (THI) in 3 studies with similar design at baseline, directly after rTMS and after 6 months**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **After 6 months** | **THI**  **After rTMS** | **Baseline** |  |  |  |
| Mean THI ± SD | | | Mean age (years) | Number of patients in trial arm | **Studies** |
| 33.27±21.6 | 31.82±22.9 (2weeks) | 37.09±21.7 | 48.09 | rTMS 22 | Andres et al. (2010) |
| 27.7±23.2 | 23.1±19.5 | 26.5±20.4 | 50.05 | Sham 20 |
| 43 ±18 | 41 ±16  (1week) | 45 ±21 | 50 | rTMS 26 | Hoekstra et al. (2013) |
| 52 ± 22 | 47 ±23 | 44± 22 | 55 | Sham 24 |
| 22.8 ± 18.2 | 19.4 ± 17.6\* (1months) | 29.8 ± 22.8 | -- | rTMS 10 | Marcondes et al. (2010) |
| 29.6 ± 23.5 | 28.9 ± 25.9 | 28.9 ± 23.8 | -- | Sham 9 |

-- patients were more than18 years of age

\* p=0.047 one sided (significant)