Newcastle-Ottawa Scale for case series and case reports (adapted version)

Roesch et al. – Mitochondrial disease and hearing loss in children – a systematic review

A. Selection (Maximum of 4 stars)

1) Representativeness of the sample
   a) Variable types of mitochondrial disease reported, based on long-term experience of a center for mitochondrial disease **
   b) Selected group, either
      a. Specifically identified by purpose and consecutively investigated *
      b. Identified by chance, reporting on individual cases

2) Ascertainment of mitochondrial disease
   a) Reliable molecular diagnosis, attributable to each specific patient reported **
   b) Reliable molecular diagnosis, not attributable to each specific patient reported *
   c) Sole description of molecular diagnosis performed for all patients

B. Comparability (Maximum 2 stars)

1) Study controlled for potential further factors associated with hearing loss *
2) Follow-up performed, allowing for outcome to appear at a later timepoint *

C. Outcome (Maximum 3 stars)

1) Assessment of outcome
   a) Reliable audiometric measurement, including OAEs and BAEPs, described in detail with quantitative data **
   b) Reliable audiometric measurement, including BAEPs, described in a qualitative manner *
   c) No description of audiometric measurement

2) Reporting on cases and investigations
   a) Reporting on cases and conduction of investigations allows for traceability and replication of research by other investigators *
   b) Description of cases and investigations appears insufficient for reliable replication

This scale has been adapted from the Newcastle-Ottawa Quality Assessment Scale (NOS) for cohort studies, including main categories selection, comparability and outcome. Sub-categories were adapted for quality assessment of this systematic literature review, including case series and case reports, also. Sub-categories were defined in order to achieve a quantitative scale on quality of information provided, necessary for review question. Assessment of reporting as a sub-category of outcome was chosen due to the narrative character of case reports and case series. One study, included in this review and fulfilling cohort study criteria (Iwanicka-Pronicka K. et al., 2012) was rated by this scale, as well, allowing for comparability. Application of a common rating system for quality assessment – with a maximum of 9 stars for all study types – allows for an estimation of quality in-between all study types included.