IS THE NEWBORN HEARING SCREENING PROGRAMME CUT-OFF OF >5 DAYS MECHANICAL VENTILATION FOR TARGETED AUDIOLOGICAL FOLLOW -UP STILL VALID?

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Background: Despite improvements in respiratory care and survival of extremely preterm infants improvements of neurological outcome remain a challenge. The surveillance and audiological monitoring guidelines of infants and children following the newborn hearing screen suggest mechanical ventilation >5days as indicator for the need of repeated hearing screening at eight months.

Aim: To determine the predictive value of ventilation >5days for hearing loss and therefore need of audiological follow-up. To compare the change of predictive value over time.

Methods: Case-control study of all newborns admitted to a single tertiary neonatal centre in 2004 and 2009 requiring any kind of respiratory support. Comparison of patients ventilated for >/< 5days with regard to hearing loss. Comparison of patients with/without hearing loss with regard to ventilation for >/< 5days. Calculation of sensitivity, specificity, positive/negative predictive values (PPV/NPV). Statistics: Wilcoxon- and McNemar-test, $p < 0.05$.

Results: 111(2004) and 229(2009) patients were recruited. Sensitivity, specificity, PPV and NPV were 64%, 74%, 4% and 99%(2004) and 57%, 81%, 5% and 99%(2009), respectively. The rate of hearing loss in newborns ventilated >5days compared to < 5days was significantly different in 2004($p=0.004$), but not in 2009($p=0.125$). Patients with hearing loss were significantly more frequently ventilated >5days than those without hearing loss in 2009($p=0.008$), but not in 2004($p=0.289$).

Conclusions: The cut-off of >5days ventilation reliably identifies those who do not need follow-up hearing screening, but remains a poor indicator for identifying those who need repeated hearing screening at eight months. Alternative indicators are needed to reduce the number of unnecessary audiological follow-up.