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| **ISA ISPID  Abstract Submission  Nº: 178**   |  | | --- | | Topics: **SIDS/SUID** | | Type: **Poster** | | **Suspected mechanisms of sudden Death which occurred subsequently RSV bronchitis** | | **Obonai, Toshimasa**1 *1 - Department of Pediatrics, Tama-Hokubu Medical Center, Tokyo Metropolitan Health and Medical Treatment Corporation.* | | **Introduction**  Many SUDI victims have a history of upper respiratory tract infection prior to death. The post mortem examinations demonstrated an increased presence of respiratory syncytial virus (RSV) among SUDI victims. RSV is a common pathogen respiratory infection in infants. Some of the infants showed apnea during the RSV infection. Though the mechanisms of apnea are still unknown, the increase in Substance P (Sub P) level is suspected to be the cause of apnea. Sub P is a neuropeptide present in sensory, parasympathetic, and sympathetic neurons. Over expression of Sub P was recognized in the medulla oblongata of some in few of the SUDI victims. Thus Sub P Is suspected to be one of the significant causes which lead to sudden death.  **Material and Methods** We selected four patients who died suddenly and postmortem examination revealed RSV infection. Age matched 14 sudden death victims who were not identified RSV infection were selected as control. After conventional post –mortem examinations, immunohistochemistry investigation on the medulla oblongata, lungs and heart with anti-RSV antibody and anti Sub P antibody were performed by avidin-biotin procedure.  **Results** Two boys and two girls aged from 6monthes to 27months were diagnosed as sudden death following RSV bronchiolitis. RSV immunoreactivity were recognized in alveorar and bronchial epithelial cells in the lung but were not recognized in other organs. The immnunoreactivity of Sub P in the medulla oblongata occurred in the N. Solitarius (NTS) and the N. ambiguous. The positive reactions against anti Sub P antibody were identified peripheral nerve fibers, blood vessels, submucosal bronchial glands and inflammatory cells in the lungs. In the heart, Sub P positive fibers were present in the AV bundle. These immunoreactivities of both anti RSV and Sub P antibidy were not recognized in the control group.  **Conclusions** RSV infection lead to the Sub P over expression in the NTS and N. ambiguous. Sub P expressed in the medulla oblongata were projected to critical parts of organs including A-V node. Afferent signals from carotid baroreceptor and from aortic bodies are processed by the NTS. Para-sympathetic drive emanates from the N. ambiguous, whilst sympathetic drive emanates from the rostral ventrolateral medulla. Pharmacological investigation revealed that Sub P micro injection into the NTS cause hypotension and bradycardia. Depending on the location of Sub P over expression, it may develop a lethal arrhythmia that can become a trigger of sudden death. **Conclusion**Though the mechanisms of sudden death were not clarified by this investigation, it is suspected that Sub P may play a significant role in the occurnce sudden death. | |  |  |  |  | | --- | --- | | **CONTACT** | | | Name: | **Toshimasa** | | Lastname: | **Obonai** | | E-mail: | **toshimasa\_obonai@tokyo-hmt.jp** | | Country: | **Japan** | | Institution | **Department of Pediatrics, Tama-Hokubu Medical Center, Tokyo Metropolitan Health and Medical Treatment Corporation** | | Cellphone: | **+81423963811** | | City: | **Tokyo** | |