Bioinformatics analysis links Sudden Infant Death Syndrome to vaccine induced autoimmunity against cardiac muscle proteins

Vinu Arumugham
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vinucubeacc@gmail.com

Background

Mutations in the cardiac ion channel genes KCNH2 and SCN5A have been associated with Sudden Infant Death Syndrome (SIDS).[1] Cardiac conduction involvement in SIDS has been suspected.[2,3]
Just as with mutations, autoimmunity against proteins encoded by these genes can be expected to result in dysfunction.

Discussion

Autoantibodies against proteins encoded by CACNA1C, CACNA1S, CACNA1D, CACNA1F, SCN5A, TRIM21, K_VLQT1 α, KCNH2 and KCNA4 have been associated with cardiac arrhythmias.

Protein sequence alignment (molecular mimicry) between vaccine antigens and above proteins was previously investigated.[4]
Results are shown in table below. Given the findings of Otagiri et al.,[1] the highlighted columns of protein sequence alignment scores are of particular interest.

Autoantigen	CACNA1C	CACNA1S	CACNA1D	CACNA1F	SCN5A	TRIM21	K_VLQT1 α	KCNH2	KCNA4
Vaccine Antigen									
Saccharomyces cerevisiae	192	172	67.4	146	70.9	39.7		33.5	27.3
Streptococcus pneumoniae	53.1	62.8	71.2	53.1	69.7		62.4	55.1	91.7
Corynebacterium diphtheriae	27.3	32.3	25.8	28.5	26.6	29.6	26.2	37.4	37.4
Bordetella pertussis	28.5		28.9	34.7	31.6	30	38.1	44.7	39.3
Clostridium tetani	29.3	25	25	25	35.8	31.6	23.5	29.6	
Neisseria meningitidis	30.4	27.7	28.5	27.7	28.1	29.6	27.3	26.9	30
Haemophilus influenzae	26.9	27.7	26.9	31.2	32	24.6	27.7	44.3	26.2
Hepatitis B	33.5	32	29.3		27.3		24.3		
Rubella							20.4		
Influenza A									26.6
Hepatitis A			31.2						

As previously described,[5] a score > 19.3 indicates high probability of cross-reactivity and autoimmune disease causation. This baseline score value was derived from bioinformatics analysis of Pandemrix vaccine induced narcolepsy.[5,6] The results show that yeast (*Saccharomyces cerevisiae*) contaminated

Hep B, Prevnar, DTaP, and HiB vaccines can independently be significant contributors to cardiac autoimmune disease that lead to SIDS. Association of hexavalent vaccines that combine DTaP, Hep B, HiB and IPV with spikes of SIDS occurrence therefore does not come as a surprise.[7,8]

While vaccines target one or a few particular viral/bacterial proteins, most vaccines are contaminated with all proteins from the virus or bacteria. Example: the Pandemrix vaccine contained both H1N1 hemagglutinin (target) and H1N1 nucleoproteins (contaminant). The exceptions are recombinant vaccines. In recombinant vaccines, the vaccine contains only the target protein from the target organism. The target protein is produced usually by genetically modifying yeast (*Saccharomyces cerevisiae*). Hepatitis B[9,10] and HPV vaccines[11] are produced using this technique. Such vaccines are however, contaminated with all *Saccharomyces cerevisiae* proteins.

Conclusion

For decades, vaccinologists have been reluctant to understand the immunological mechanism of how vaccines work, fail or hurt the body. Pulendran et al.[12] write:

“Despite their success, one of the great iro-nies of vaccinology is that the vast majority of vaccines have been developed empirically, with little or no understanding of the immunological mechanisms by which they induce protective immunity. However, the failure to develop vaccines against global pandemics such as infection with human immunodeficiency virus (HIV) despite decades of effort has underscored the need to understand the immunological mechanisms by which vaccines confer protective immunity.”

Trial and error based development, with no understanding of mechanism of operation is no way to build a safety critical product, centuries after its invention. All current vaccines need a fresh, thorough, safety analysis.[13,14] Vaccines need to be redesigned using a “safe by design”, design methodology.[15,16]

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