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372 A Case Series of Measles Vaccination Failure in Healthcare Workers

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RATIONALE: Measles vaccine is given as part of MMR vaccine series in 2 separate doses, achieving approximately 95-99% seroconversion rate. Determining sufficient clinical response to measles vaccine in at-risk population (e.g. healthcare workers) has not been established.

METHODS: Retrospective chart review was performed on three Kings County Hospital Center employees identified as having negative measles titers, despite repeated vaccination with MMR.

RESULTS: Three healthcare workers were identified with negative titers to measles during pre-employment laboratory analysis. All three cases had normal WBC counts/differential (mean WBC counts 6.1 K/uL), negative hepatitis panel and positive HepBs Ab titers. Two cases were female employees who each received a total of 4 MMR doses, with the last doses given on 12/2012 and 2/2014, respectively. Their MMR titers were respectively measured on 4/2015 and 8/2014, showing positive mumps and rubella IgG titers yet negative measles IgG. The third case involved a male employee who received a total of 6 doses of MMR, with the last dose given on 12/2013. His MMR titers were measured on 5/2014, similarly showing positive mumps and rubella IgG titers; however, measles IgG titer was equivocal—with negative repeat measles IgG on 6/2014. His serum CD3/CD4/CD8/B & T cell counts were normal. There was no history of immunodeficiency or recurrent infections in all three cases.

CONCLUSIONS: We identified three cases of negative measles titers in otherwise healthy healthcare workers after repeated vaccination. Consensus to further evaluation of otherwise healthy individuals with negative laboratory vaccine response has not been established.

373 An Atypical Case of Pancreatic Mass Causing Anti-NMDA Receptor Encephalitis

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RATIONALE: Anti-N-methyl-D aspartate (NMDA) receptor encephalitis is an autoimmune encephalitis with antibodies against NR1 and NR2 subunits of cell surface NMDARs. Patients' present with variable clinical features. Anti-NMDA receptor encephalitis is associated with ovarian pathology.

METHODS: Case Report.

RESULTS: A 23 year old female with no past medical history was brought to ER for altered mental status. 2 weeks prior to admission(PTA) she was having short-term memory problems. 1 week (PTA) she was agitated with auditory hallucinations. 2 days (PTA) PMD prescribed seroquel. On admission she was acting psychotic, speech was impaired with orofacial dyskinesias. Utox was negative, CT & MRI were normal. LP demonstrated 50 wbc(96% monocytes) and she was admitted with diagnosis of viral encephalitis. Patient became catatonic and displayed autonomic dysfunction. On Day 5 of hospitalization she was transferred to an academic medical center where she underwent CT chest/abdomen/pelvis, with serum sent to California encephalitis project to evaluate for NMDA receptor antibodies. The CT identified 5x5cm mass at the tail of pancreas. Day 16 of hospitalization, NMDA receptor auto antibodies in her serum were detected. It was the clinical impression pancreatic mass was causing her to have Anti-NMDA receptor encephalitis. The patient underwent surgery and received IVIG for 5 days (2grams/Kg). Neurologically, she immediately improved. Her final pathology was solid-pseudopapillary neoplasm.

CONCLUSIONS: Anti-NMDA receptor encephalitis was first described in 2007 by Dr. Dalmau. Aniti-NMDA receptor encephalitis has been associated in some cases with ovarian pathology, in particular teratoma. This case illustrates the first case of NMDA receptor encephalitis due to a pancreatic neoplasm.

374 Induction of Tolerogenic Dendritic Cells Using Co-Culture with Human Olfactory Mucosa-Derived Mesenchymal Stem Cells

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RATIONALE: Human olfactory mucosa-derived mesenchymal stem cells (hOM-MSCs) may impact the immunophenotypic profile of human dendritic cells (DC).

METHODS: hOM-MSCs were obtained from 6 patients with non-inflammatory nasal diseases. DC were obtained from monocytes using standard 6-day (GM-CSF/IL-4) protocol. hOM-MSCs were co-cultured with DC. DC were also cultured with LPS (positive control) and with hOM-MSCs conditioned media (CM). After 72 h of culture DC were assayed for immunogenic (CD80, CD86, HLA-DR) and tolerogenic markers (CD85k, CD273) as well as activation molecules (CD32 and CD83).

RESULTS: DC matured with LPS had increased expression of CD32, CD80, CD83, CD86 and HLA-DR molecules. DC cultured with hOM-MSCs CM had slight increased expression of CD80 while maintaining immature phenotype. DC co-cultured with hOM-MSCs hads significantly increased expression of both immunogenic (CD86, CD32, $p<0.05$) and tolerogenic markers: CD85k (iDC – 50.2 (21.3-70.5)%, mscDC – 75.5 (31.2-86.4)%, $p=0.03$) and CD273 (iDC – 29.9 (24.3-37.0)%, mscDC – 40.6 (35.1-54.0)%, $p=0.02$).

CONCLUSIONS: DC cultured in the hOM-MSCs CM had immature phenotype. hOM-MSCs induce a tolerogenic profile in DC.

375 Exhausted T-Cells and Memory T-Cell Subsets in Adult Varicella-Zoster Patients

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RATIONALE: Chicken Pox or Varicella (VZ), which uncommonly occurs in adults, may be related to memory T-cell subsets and exhausted T-cells.

METHODS: Blood taken from 12 adult patients with VZ infection was assayed for exhausted T-cell counts using 3 markers of exhausted T-cells: Tim-3, CD223 (Lag-3) and CD279 (PD-1). T-cells were divided into subsets: Naïve ($CCR7^+CD45RA^+$), TCM ($CCR7^+CD45RA^-$), TEM ($CCR7^-CD45RA^-$), TEM1 ($CCR7^-CD45RA^-CD28^+$), TEM2 ($CCR7^-CD45RA^-CD28^-$), and TEMRA ($CCR7^-CD45RA^+$).

RESULTS: Tim-3^+, Lag-3^+ and PD-1^{hi} T-cell counts were 5-8 fold greater in VZ patients versus controls, indicating immune impairment (Tim-3^+ VZ: 1.93(0.5–5.08)%; C: 0.35(0.25-0.67)%, $p=0.02$; Lag-3^+ VZ: 1.24(1.12–1.51)%; C: 0.21(0.15-0.45)%, $p=0.0001$; PD-1^{hi} VZ: 7.6 (4.6-10.7)%; C: 0.96(0.36-1.45)%, $p=0.0001$). Naïve and TCM subsets were decreased ($p=0.00005$, both subpopulations), while TEM was increased ($p=0.0001$). VZ had a tendency ($p=0.09$) towards increased TEMRA subset (VZ: 22.2(10.5—26.9)%; C: 10.8(4.9-19.1)%). $CD28^+$T-cells were lower in VZ versus C (VZ: 39.6(28.5-44.5)%; C: 59.5(54.0-61.4)%, $p=0.0005$).

CONCLUSIONS: VZ infection induces changes in memory/effector T-cells, naïve and TCM cells differentiating into TEM and TEMRA subsets that migrate to peripheral tissues and function as effector cells, with marked increase in exhausted T-cells.

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