Meningitis in the Kaiser Permanente Northern California Pediatric Population 2012 through 2016 and Its Association with Prior Traumatic Brain Injury

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**BACKGROUND**

- Meningitis is a life-threatening infection of the cranial and spinal leptomeninges.
- The incidence of meningitis, particularly bacterial meningitis, is decreasing due to widespread vaccine use.
- In 2006-2007, meningitis incidence was 1.38 per 100,000 population in the U.S.
- Risk factors for the development of meningitis are largely unknown.
- A California Department of Public Health study demonstrated individuals with a prior TBI were 2.3 times more likely to develop pneumococcal meningitis.
- However, there has been very little research conducted to determine the risk of developing meningitis secondary to a traumatic brain injury.

**OBJECTIVES**

- Describe the epidemiology of meningitis among the pediatric population.
- Assess the association between prior TBI and meningitis among the pediatric population.

**METHODS**

- Retrospective review study to determine etiology of pediatric infectious meningitis.
- Patients identified by an ICD-9 meningitis diagnosis between July 2012 - June 2016.
- Retrospective review study to determine etiology of pediatric infectious meningitis.
- Case Definitions:
  - Diagnosis of meningitis during hospitalization for prematurity.
  - Patients identified by an ICD-9 meningitis diagnosis between July 2012 - June 2016.
  - Retrospective review study to determine etiology of pediatric infectious meningitis.

**RESULTS**

- 127 Cases Included
- 116 Cases Voice Meningitis
- 10 Cases Presumed Bacterial meningitis
- 5 Cases Presumed Viral meningitis
- 4 Cases Enterovirus
- 3 Cases Neisseria meningitis
- 2 Cases West Nile
- 1 Case Presumed Bacterial meningitis

**RESULTS CONT.**

- Table 1. Demographics of KPNC pediatric patients with meningitis (July 2012 – June 2016)

**CONCLUSION**

- Results are consistent with recent studies showing a decline in the incidence of bacterial meningitis.
- Entomonic meningitis remains the leading cause of identified etiology.
- In a scalable proportion of cases there was no specific pathogen identified. In these cases, the meningitis may be due to other bacteria and pre-treated or secondary to untreated viral.
- An increased risk of developing meningitis may be associated with TBIs. Further evaluation of association with a case-control study may be performed.

**REFERENCES**

11. Victoria Chu
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