Epidemiology Of Headaches In Patients With Shunts

Hydrocephalus Association Self-Reporting Database
Thank You

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Background

- The Hydrocephalus Association maintains a self-reporting database of its members and those who attend its meetings
- Data submitted by the patient or family member
- Patient population divided into age grouped categories
  - 0-18 months
  - 19 months -12 years
  - 13-19 years
  - 20-44 years
  - 45 years and > no NPH
  - 45 years and > NPH
Methods

- Database mined relative to patients 19 mos to 45 years as to the effect of headaches on quality of life
- The question asked was “Do you or your family member suffer from frequent severe headaches?”
- 510 patients answered that were between the ages of 19 months and 45 years for which an answer to this question was available
- The responses were analyzed as to age at shunt insertion, age at response, and length of time of treatment and compared to data from total population
Chronic Daily Headaches

- Definition accepted by International League on Management of Headaches
- Headaches occurring at least for 4 hours per day 15 days per week
- Incidence internationally 4% of population
- 1.8:1 Women to men
- Various etiologies
  - Migraine with family history
  - Tension/muscle contraction headaches
  - Fibromyalgia/Chronic fatigue syndrome
  - Medication overuse headaches
When did the treatment begin

![Bar chart showing percentage of treatment begin at different stages of life.]
Incidence of Headaches as a Function of Time of First Intervention

- Adolescence Treatment, No Headaches: 65%
- Adolescence Treatment, Headaches: 41%
- Childhood Treatment, No Headaches: 33%
- Childhood Treatment, Headaches: 41%
- Infancy Treatment, No Headaches: 25%
- Infancy Treatment, Headaches: 33%
Headaches As A Function of Age

- 19mo - 12yrs: 29% No Headaches, 71% Headaches
- 13-19 yrs: 42% No Headaches, 58% Headaches
- 20-45 yrs: 44% No Headaches, 56% Headaches

P-value = 0.00000505

P = .000008
Results

• While direct comparison is not possible analysis of our data suggests that Chronic Daily Headaches occur in 4% of the general population, 25% of children between 19 months and 12 years with shunts and in 41% of adolescents and young adults over the age 12

• Headaches are a significant problem for our patients and interfere with normal life

• 74% of adults with hydrocephalus received their initial treatment in infancy
The Red Badge Of Courage

• As long as there is a shunt the headaches are always the shunt’s fault
• The best treatment is no shunt
• If shunt cannot be removed at least the patient can be made normal biophysically and understand the problems
• Non-invasive ICP monitoring would be very valuable, save many thousands of dollars and many hours in ER
Following Imaging Study

Shunt Clamped

- Ventricles Enlarge: Patient symptomatic
  - Perform ETV 50%

- Ventricles Enlarge: Patient asymptomatic
  - Remove Shunt 25%

- Ventricles do not enlarge: ICP increased
  - Assess for Lumbo-peritoneal shunt
  - Normal Volume Hydrocephalus 25%
Assessment And Treatment Of “Normal Volume Hydrocephalus

**Ventricles do not enlarge**

- Perform Iohexal Ventriculography
- CT Scan of Head and Cspine
  - Positive (28/31)
    - Valved LP Shunt
  - Negative
    - VP with valve upgrade
    - CM to VP
Can We Make Patients Who Require Treatment For Hydrocephalus Normal?

• All CSF compartments must communicate
  – Endoscopic fenestration
  – If multiple catheters all should be proximal to one valve
  – Use Of LP shunt
  – Use of Cisterna Magna to Ventricle to peritoneal shunt

• Recumbent ICP should be 5-15 mmHG
• Erect ICP should be Minus 5- plus 5 mmHg
Recommendations

• Routine use of shunts incorporating adjustable valves and devices which retard siphoning
• Attempt to remove shunt if at all possible
• Await development of implantable sensors with baited breath
• Program patient for normal CSF dynamics from the beginning
• Avoid use of opioids at all costs!!!
  – They potentiate the problems
Medication Overuse Headaches

- Medication overuse as a cause of chronic headache
- in shunted hydrocephalus patients
- L Willer,1,2 R H Jensen,1 M Juhler2

- J Neurol Neurosurg Psychiatry 2010;81:1261e1264.
  doi:10.1136/jnnp.2009.198101
Recommendations 2

• Avoid Emergency Rooms if at all possible
  – You’ll always get a CT scan and Xrays
  – You’re likely to go out with opioids

• Avoid CT scans if at all possible
  You’ve already had too many
  Find a place where you can get a rapid MRI
  and insist on that as your study

• Find a physician you trust to help manage your headaches stick with that physician
Conclusions

• Fine tuning of the database to allow correlation with non-hydrocephalus individuals
• Many patients with hydrocephalus may enjoy life without shunts
• In the most complicated patients who are often those that are most likely to be competitive the stakes are the highest and they will benefit from programmed shunt removal protocol