Adrenoleukodystrophy- problems with and how to improve identification

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Aims

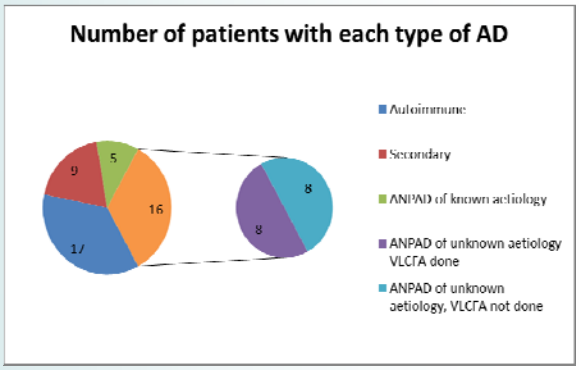
- Adrenoleukodystrophy (ALD) is a rare, sometimes devastating, but treatable illness caused by-mainly inherited- mutations in the ABCD1 gene on the X-chromosome[1].
- These mutations can also cause antibody negative primary Addison's disease (ANPAD)[2].
- There are recommendations that all men affected by ANPAD should have very long chain fatty acid (VLCFA) analysis- a sensitive and specific test for those carrying mutations in ABCD1[3,4,5].
- We aim to highlight the significant number of men with ANPAD that do not receive VLCFA testing.

Method

1. We identified all requests for adrenal antibodies in male patients over 2005-14 in our tertiary centre
2. We excluded all who tested positive
3. We reviewed patient records to identify which patients were diagnosed with AD
4. We excluded those with secondary Addison's- e.g. due to suppression of the hypothalamic pituitary axis by steroids, and those with a clear cause for ANPAD- e.g. adrenal haemorrhage
5. We cross checked whether those remaining had undergone VLCFA testing in our regional biochemistry department database

Results

- **269** males were identified to have undergone adrenal antibody testing
- **17** of these were positive giving **252** that tested negative
- **30/252** were diagnosed with AD
- **16/30** had ANPAD of unknown aetiology. The remaining **14** either had secondary AD or had a clear cause for ANPAD such as adrenal haemorrhage, familial glucocorticoid deficiency or TB adrenalitis.
- **8/16** of males with ANPAD of unknown aetiology underwent VLCFA analysis
- **Giving a 50% failure rate**



Conclusion

- There was a 50% failure rate for screening males with ANPAD for VLCFA in our centre, over the last nine years.
- After discussion with ALD-Life we believe the figure is likely to be similar elsewhere.
- VLCFA testing is a cheap, highly sensitive and specific test for detecting those carrying ABCD1 mutations and hence having family members at risk of cerebral ALD[4].
- We recommend NICE guidelines on AD should include counselling and then offering VLCFA testing to all males with primary ANPAD.

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