

ASSOCIATE PARLIAMENTARY FOOD AND HEALTH FORUM

Chairman: Lord Rea
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Autism and Allergies

Tuesday, 4 May 2004

Committee Room 10, House of Commons

CHAIRMAN: Lord Rea

SPEAKERS: Professor Jonathan Brostoff, Senior Research Fellow & Professor Emeritus of Allergy at King's College, London

Dr Mike Tettenborn, Consultant Paediatrician, Frimley Children's Centre

Introduction

1. Lord Rea welcomed everyone to the meeting and apologised for the change in venue. He then asked the first speaker, Professor Brostoff, to make his presentation.

Professor Jonathan Brostoff

2. Professor Brostoff started his talk by explaining that the connection with diet goes much wider than Autism, Aspergers and ADHD. The consumption of different types of food can affect different parts of the body; the issue of food intolerance is greatly underestimated. Professor Brostoff's talk looked at various aspects relating to autism: behavioural and physiological effects, the areas of care that are affected and what needs to be done in the future.
3. In the 1980s, Dr Derek Ricks identified that autistic children often regressed into an autism-related disorder after around twenty months – infections were mooted but none have been identified as the cause although some may be the last straw. Unfortunately Dr Ricks died before it was possible to write a joint paper on this. With autistic children, there is often a history of multiple unexplained symptoms – there has been a series of articles in The Daily Telegraph on Tuesdays on this subject. Professor Brostoff's personal bias is that it is tragic to lose autistic children because of a lack of input. These kids have profound problems and must be properly treated. He then spelt out the consequential problems.

Behavioural

4. Several diseases are genetically linked and, as a result, the children of autistic kids have an even higher chance of developing autism. These children have a social impairment. For example, a child may only understand words as words. A child with Asperger's Syndrome will see words as what they actually mean rather than a hidden or secondary meaning. These children also have a liberal conceptual framework and an inability to understand and express emotions. Their behaviour is often aberrant, bizarre and inappropriate.

Physiological

5. Physiological problems in autistic children put a blanket over everything they do. The problems could be dietary and may relate to gluten/casein, other foods, chemicals or medications. Excessive thirst is another common problem as well as hyperactivity and catatonia. A study by Professor Mendoza found that the lining of the gut was typically a hive of activity and concluded that the reactions in autistic children were a result of an inflamed gut. The children were prone to constant infections/hay fever/asthma/eczema/migraines and one third of them had seizures. There was also a family history of autoimmune diseases meaning that antibodies were being produced against tissues that are naturally present in the body. Problems with cells have also been identified; some cells recognise bacteria, eating cells etc. Siblings are also prone to ADHD, dyslexia and learning difficulties. Professor Brostoff emphasised that there is still a lot of work to be undertaken in this area.

Areas of Care affected

6. Professor Brostoff explained that education is a non-starter for many autistic children. If you have a child who is socially ex-communicated and flies into tantrums, then this person is clearly not going to be able to go to a normal school. The severe cases have no social interaction at all. Their health is markedly problematic and they suffer from severe gut problems. There is not enough residential care for children and what there is, is often too far away. There is a large cost to society for the long term constant care of those affected – the Mental Health Foundation has found that the annual cost is around £1bn. The National Autistic Society has found that around 500,000 families have been affected.

What needs to be done?

7. More needs to be done. It would be wonderful if autism could be treated as a disease as it is still considered to be a physiological behavioural problem. If good research is carried out then some things could be done more easily. Is there something special about one group such as children who are catatonic? Is there too much of something in their blood? An encouraging recent step is the appointment of a Professor of Autism at the University of Oxford. Other types of research are also needed as well as a dedicated research centre. It is also known that if people change their diet then symptoms can improve. For example, if you have a salad for lunch instead of a sandwich then you are likely to be more awake and alert in the afternoon. We will lose children forever unless they are treated holistically.

8. **Lord Rea** thanked Professor Brostoff for his talk and invited Dr Tettenborn to make his presentation.

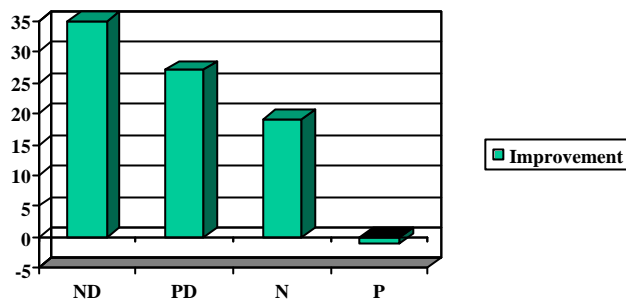
Dr Mike Tettenborn

Introduction

9. There are many options for managing autism and a large number can be found online. These include gluten and casein free diets; anti-fungal therapy; supplements such as zinc, magnesium, B6 and essential fatty acids; chelation therapy for heavy metal poisoning; digestive enzymes; and carbohydrate free diets.
10. The focus of Dr Tettenborn's talk was on the first two of these (gluten and casein free diets and anti-fungal therapy) and the talk will be from the angle of Mr Tettenborn's own clinical evidence.
11. **Gluten & Casein Free Diet:** There is no specific test for this diet. It involves the avoidance of all animal milks and all products containing gluten (including wheat, barley, rye and oats). Monosodium glutamate and aspartame and other food additives should also be avoided and diet symptom diaries should also be kept to identify other triggers
12. **Anti-fungal Regime:** This regime involves following a low sugar and low yeast diet. Concurrent treatment is also required with an anti-fungal agent. If effective, treatment may need to be continued for several months or years. The preferred agent is nystatin but others such as amphotericin, fluconazole or ketoconazole may be used. Herbal treatments can also be used.
13. There is a paucity of trial evidence. In September 2002, the results of a study by Knivsberg, Reichelt, Hoiem and Nodland were published in *Nutritional Neuroscience*. The study was the first attempt which looked at a randomised, controlled study of dietary intervention in autistic syndromes. In reality, there is very little solid evidence. The study was a single blind study in 20 children (10 active and 10 controlled) all of whom had positive evidence of peptide abnormalities in their urine. (Another test has been conducted based largely on work performed in Norway and at Sunderland University (by Dr Paul Shattock). This test is for kids who do not normally respond to tests; it is useful but is not the solution. This uses gas/liquid chromatography to separate out chemicals in urine and identifies substances that may be related to natural opioids probably derived from casein and gluten).
14. **Peptide Abnormalities** The trial was a single blind study in 20 children (10 active and 10 controlled). All had positive evidence of peptide abnormalities in their urine. The treatment group were placed on a diet free of casein and gluten and observations were carried out before the diet and after one year. One weakness of this is that it was an open test and the children knew that they were on a restricted diet. There were also independent reports carried out by teachers as well.
15. **Anti-Fungal Treatments in Adults** There is even less evidence in this area. A Swedish GP named Heiko Santelmann carried out a trial looking at the effectiveness of Nystatin in polysymptomatic patients. This was a randomised double blind trial with nystatin vs placebo in general practice. 116 adults with multiple symptomatology were used in the

experiment; 18 were given Nystatin plus diet, 41 were given Nystatin alone, 31 were given the diet alone and 30 were giving nothing. The results show a real effect with a gradation reflecting a degree of intervention:

Results of Anti-fungal Trial



Other Evidence

16. Although there is little solid evidence, patients and pupils are a phenomenally powerful source of information particularly when feedback is sought from schools and pre-schools. Trials of n=1 are also undertaken and observations are carried out on stopping as well as starting treatment. The observation of transiently increased symptoms when treatment is started mitigates against a pure placebo effect. Very often kids respond to pre-intervention very quickly.

What confounds the evidence?

17. **Imprecise diagnosis** Diagnostic criteria are derived through consensus rather than being organically based. Reiterating Professor Brostoff's point, this can be seen through language disorder or a social communication disorder. For example, a child will see words as what they actually mean so if a teacher is to say to a child 'pull your socks up' then they child will literally do as the teacher asks rather than acknowledge that the teacher is asking the child to 'get a grip'. As a result, the teacher may then misinterpret the actions of the child and assume that he/she is misbehaving. There is no biological test for autism. Throughout the world, different rating scales are used and these will give varying results on the same clinical pattern.

18. **Different sub-types** Several different subtypes of the autistic spectrum can be observed.

19. **Regressive Pattern Characteristics** There are clear indications of normal development in the first year of life with finger and eye pointing and early language development. Usually between 13 and 18 months there is a loss of language skills but there is no clear association with MMR. On a wider point, Dr Tettenborn felt that he MMR story should have been buried long ago. In addition, the children:

- develop bowel disturbances usually in the form of constipation or alternating constipation and diarrhoea
- have nasal congestion, excessive thirst and excessive sweating at night.
- crave food, particularly problem foods
- experience changes in mood and are often lethargic
- are often fair haired (maybe there is a more vulnerable gene type)

- develop facial pallor and are generally ill (dark shadows under the eye)
- have reduced sensitivity to pain
- have swollen tonsillar lymph glands

20. **Hypotheses** Due to the lack of a single confirmed mechanism there are a number of hypotheses presented to explain food related pattern. Three common hypotheses are the opioid hypothesis indicating that natural endorphins in food are absorbed as a result of incomplete digestion and have a toxic effect, the leaky gut syndrome which suggests that foreign proteins are absorbed and trigger adverse reactions and the candida or fungal hypotheses which postulates that an abnormal gut flora predisposes to either the leaky gut syndrome or the absorption of endorphins

Dr Tettenborn's experience

21. In 1985, Dr Tettenborn saw triplets, one of whom showed marked autistic features at 13 months of age, having been previously normal. The child developed excessive thirst, went very pale, had an ill-looking appearance and begun chewing doorframes and soil. She also had a congested nose and altered bowel habit. When she was born, she needed more antibiotics than the other two triplets.
22. Dr Tettenborn's previous experience with food intolerance in relation to attention deficit and hyperactivity identified a possible link due to the similar symptoms. A modified diet was implemented. This was initially milk free, then milk and gluten free. Further modifications were made based on a diet symptom diary. As a result there was a definite improvement in both autistic and physical symptoms. When the diet was discontinued there was a regression. The patient is 18 years old and although there are still some autistic traits, the person has sustained mainstream school placement with extra support. On the basis of the initial presentation, severe learning difficulties would have been anticipated.
23. **Audits/Reviews** Through applying similar regimes, further experiences have now been established. Two reviews of cases have been undertaken and performed retrospectively. The first review was conducted by Dr Tettenborn and the second review, which was conducted independently, has not yet been completed. 57 children were used ranging between 2 and 15 years of age – the mean age was 4 years 1 month. (It would have been preferable to use patients under the age of 5/6). The number of children with regression was 35 and the average age of regression was 16 months. 36 children had symptoms of bowel problems and 33 experienced excessive thirst.
24. The recommended treatment was:
- Nothing (13)
 - Anti-fungal (24)
 - Gluten/Casein free (9)
 - Anti-fungal and Gluten/Casein free (11)
25. The outcome was a definite and sustained improvement in 28 children (15 reported a serious deterioration when intervention was discontinued) and 6 children had an uncertain improvement.

26. **Dr Clive Jones' Audit** Dr Jones undertook a second audit between 2000 and 2001. The response was that data on 13 children treated with Nystatin followed through for at least 6 months. (Many more were reviewed but the audit was not complete). 8 males and 3 females appeared to exhibit very positive responses in both autistic and associated symptoms (usually substantiated by reports from other professionals). The average age of this group at the initial consultation was 4.1 years (the range was between 2.5 and 7.2 years).

The Way Ahead

27. In future:

- support should continue to be provided for families wishing to pursue this approach with assistance from dieticians
- an open mind should be maintained when getting feedback from parents.
- a service should be provided that assesses cases and where appropriate advises against diets as well as recommending these in other cases
- it must be emphasised to parents the principal of sequential intervention and ensure that any changes do not cause more problems
- good dietetic support is provided ensuring that children are well nourished
- validate tests of nutritional status and make these more accessible

28. MRC has recognised a need for research into bowel disorders and bowel flora and autistic spectrum disorders. A double blind placebo controlled trial of Nystatin in a specific sub-group of patients is to be carried out. If possible, there may also be a repeat trial of gluten and casein free diet against a placebo. Professor Glen Gibson at the University of Reading is also going to undertake a probiotics study.

Questions and Answers

29. **Baroness Gibson of Market Rasen** asked whether autism had always been in existence or if it is something that has developed. **Mike Tettenborn** said that it is a bit of both. It has always existed but has been poorly diagnosed. There are clear signs that the regressive pattern is increasing.

30. **Elizabeth Lund, Institute of Food Research**, asked if the speakers were aware of the work which Professor Glenn Gibson is undertaking on antibiotics. **Mike Tettenborn** said that he was in regular communication with Professor Gibson and is very interested in his work on organisms and the gut wall. **Jonathan Brostoff** said that most people have got candida in their gut. Even though this is the fourth year of studies looking at bacteria in the gut, no one appears to be interested. Responding to a second question about a boy born prematurely who received a lot of antibiotics, Dr Tettenborn said that he had not seen enough statistics on this but it was fair to say that there was a greater risk of child being autistic if he/she had received a lot of antibiotics as a baby.

31. **Sue McGinty, BANT**, asked about the use of antibiotics. **Mike Tettenborn** said that he tried to wean kids off antibiotics and was using probiotics instead. **Jonathan Brostoff** said that this was a problem and was interested in the wider relationship between antibiotics and the lining of the stomach.

32. **Lord Rea** asked the two speakers how Parliamentarians can take forward the information presented at the meeting and wondered whether this was a matter for Parliamentary concern. **Mike Tettenborn** said that changes in the NHS could help on a wider scale. At the moment, there is virtually no choice for parents of autistic children. The local Primary Care Trust will dictate what is affordable and what is a priority whereas the parents perception of what is right for them should be the driver. **Jonathan Brostoff** said that this was an unpopular area clinically. 90% of patients come and see their GP and end up going elsewhere to specialists or to the private sector.
33. **Evan Harris MP** said that NHS Research & Development should be interested in this area adding that he would be surprised if they were not interested. He said that a systematic review of the evidence is needed as there has presumably been a publishing bias previously and some trials have not been cited. **Mike Tettenborn** said that over the last five years, 8 papers have been produced on the issues surrounding autism. It is incredibly difficult to do 'blind studies' with diets as concealing what is in the diet for six weeks or longer is virtuously impossible. A minimum of 6 weeks is needed to assess the response. In 1990, Baird, Cox and Tettenborn produced a well worked out research proposal. The study completely turned down the idea of only measuring a child's symptoms.
34. **Dr Susan Oaten, BANT**, said that kids have strange eating habits and as such it is hard enough to get them onto healthy diets. Tests should not be for those that can afford it – the problem is that they are not carried out on all people. **Mike Tettenborn** said that there are some remarkably similar patterns. For example, many autistic children had very low levels of minerals.
35. **Sue McGinty, BANT**, inquired about the twenty-month trigger and wondered if there was anything that has not been looked at. **Jonathan Brostoff** said that there were 23 children who filled all the criteria but there were lots of associated problems. **Mike Tettenborn** said that it is often a build up of things. For example, there are often much higher rates of asthma.
36. **Judy More, Paediatric Group of the British Dietetic Association**, asked about the role of essential fatty acids. **Mike Tettenborn** said that he was sure that they had a role to play in ADHD and Aspergers. He said that he has not usually started with essential fatty acids as a form of treatment but would probably use them after about three years or so. Patients should not be doing an 'all at once' approach but should instead be doing a 'sequential' approach starting with gluten, dairy, fungal trials rather than treating with fatty acids. **Judy More** also asked whether any peer review had been published on the Derham Trial. **Mike Tettenborn** said that a peer review was needed
37. **Elizabeth Lund, Institute of Food Research**, asked what proportion of autistic people are regressive. **Mike Tettenborn** said that no one knows the answer to this question as no rational analysis has been done, his own figures might reflect referral bias.
38. The final question from **Lord Rea** asked if Mike Tettenborn and Jonathan Brostoff could put forward research proposals to the NHS and suggested the idea of champions for autism being created. **Mike Tettenborn** said that more research is needed. At present, there are a small number of people undertaking research and more support is needed. He added that any champions would have to operate locally with the specific aim of lobbying the NHS at a local level.

39. **Lord Rea** thanked everyone for attending and contributing to the meeting and informed members that the next meeting would be looking at the **Atkins Diet** and would take place on **Tuesday, 29 June**. Details would be circulated to members shortly.

Appendix

Biographies of Speakers

Professor Jonathan Brostoff, Senior Research Fellow & Professor Emeritus of Allergy at King's College, London

Professor Brostoff's research group is focused on the role of food and inhalant allergens on the mucosa of the body and the role of environmental factors on these responses.

He was the Foundation Professor of Allergy and Environmental Health and Director of the Centre for Allergy Research at University College, London (UCL). Whilst at UCL (Middlesex Hospital) he was Physician in charge of the Allergy Clinic and related clinical services and Director of the Diagnostic Immunology Laboratory at UCL Hospitals - the laboratory has an international reputation and is a reference laboratory for the World Health Organisation.

Professor Brostoff's interest and areas of research concern the diagnosis and treatment of patients with environmental illness, for example chronic fatigue syndrome and anaphylaxis, food allergy and intolerance and the need to provide these patients with effective and expert treatment. He has also established the Allergy Research Foundation of which he is Chairman of the Medical and Scientific Committee; the charity is dedicated to raising the awareness of Allergy through education and research. He has also written a number of books and has had research published in areas relating to food allergy and intolerance.

Dr Mike Tettenborn, Consultant Paediatrician, Frimley Children's Centre

Dr Tettenborn is a General Practitioner with a special interest in allergies and in educational medicine. He qualified at Bristol in 1971 and was a medical officer in the Army from 1973 until 1977 working initially as an RMO and then as a trainee Paediatrician. Following his spell in the Army, he went on to further training at Swindon, Oxford and Guy's. His first consultant post was in Eastbourne but he has since moved to Frimley Park Hospital and Frimley Children's Centre. Dr Tettenborn's experience in this field goes back for 20 years.