

with psychiatric comorbidities, particularly those with depression, dementia and intellectual disability. Better optimisation of facilities and a more personalised approach to patients with CPC are required to improve inpatient outcomes and resource allocation.

Impairments in theory of mind following traumatic brain injury: a systematic review

Radhika Chikramane

Westmead Hospital

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Aims. To assess the nature and extent of Theory of Mind (ToM) impairments post-TBI.

Method. Electronic databases searches included PubMed/MEDLINE, PubMed Central, Scopus, PsychArticles, PsychINFO, Web of Science, ProQuest Central, and Wiley Online Library databases. Only studies conducted on adult patients with TBI compared with healthy controls published in English in peer-reviewed journals were considered. Reference lists were manually checked for additional studies. 19 studies were identified.

Result. Marked moderate-to-severe ToM deficits in adults post-TBI were observed across all severities of injury and chronicity. ToM deficits were documented across tasks and reflected a hierarchy where performance worsened significantly as tasks progressed in complexity. Despite supportive factors, certain aspects of ToM impairment, such as ability to detect and interpret non-literal speech and judge appropriateness of context remained affected in the subjects.

Conclusion. ToM deficits represent a robust finding in adults with TBI. The chronicity of TBI requires a long-term view and is complicated by the fact that ToM deficits are invisible and difficult to understand. Perceptive-taking deficits faced by TBI sufferers has bio-socio-economic implications. This review also discusses implications for basic and clinical neuropsychology and rehabilitation efforts. Further research is needed, particularly in the form of large, longitudinal studies that mimic day-to-day interactions, to inform/support rehabilitation programs.

Predictors of cognitive, behavioural and academic difficulties in NF1

Kavitha Chinnappa Ramamurthy^{1*}, Marie-Maude Geoffray², Louise Robinson¹, Lauren Manderson¹, Julieta O'Flaherty¹, Annukka Lehtonen¹, Grace Vassallo¹, Shruti Garg³ and Jonathan Green⁴

¹Department of Child and Adolescent Psychiatry, Manchester University Foundation Trust; ²Centre hospitalier le Vinatier;

³Manchester Centre for Genomic Medicine, Manchester University NHS Foundation Trust, Manchester Academic Health Sciences Centre, Department of Child and Adolescent Psychiatry, Manchester University Foundation Trust and ⁴Division of Neuroscience and Experimental Psychology, Faculty of Biological Medical & Health Sciences, University of Manchester, Manchester Academic Health Sciences Centre, Department of Child and Adolescent Psychiatry, Manchester University Foundation Trust

*Corresponding author.

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Aims. The aim of this study is to systematically investigate the demographic and disease predictors of cognitive and behavioural phenotype in the largest cohort of children with NF1 published to

date. Based on previously published research, we examine the potential role of demographic predictors such as age, sex, SES, parental NF1 status as well as the neurological complications such as epilepsy and brain tumours in NF1 associated cognitive/behavioural impairments.

Method. In this cross-sectional study design, participant data were drawn from two large databases which included (i) A clinical database of all patients with NF1 seen in a clinical psychological service from 2010 to 2019 and (ii) A research dataset from two previously published studies (2,8). The complex National NF1 service based within Manchester regional genetic services is set up for individuals with complex NF1 (<https://www.mangen.co.uk/healthcare-professionals/clinical-genomic-services/nf1/>) in the North of the UK. Children were referred to the psychological services by NF1 clinicians if psychological assessment was warranted based on parental reports. In order to reduce clinic referral bias, the clinical sample was supplemented by including participants that were seen solely for the purposes of research studies within our centre.

Result. Relative to population norms, 90% of the NF1 sample demonstrated significantly lower scores in at least one cognitive or behavioral domain. Family history of NF1 and lower SES were independently associated with poorer cognitive, behavioral and academic outcomes. Neurological problems such as epilepsy and hydrocephalus were associated with lower IQ and academic skills.

Conclusion. Cognitive and behavioural phenotypes commonly emerge via a complex interplay between genes and environmental factors, and this is true also of a monogenic condition such as NF1. Early interventions and remedial education may be targeted to risk groups such those with familial NF1, families with lower SES and those with associated neurological comorbidities.

Investigating the association between depressive disorders and cerebral haemodynamics

Tamara Chithiramohan^{1*}, Jvalant Parekh², Lucy Beishon¹, Golo Kronenberg¹, Victoria Haunton¹, Jatinder Minhas¹, Thompson Robinson¹ and Ronney Panerai¹

¹University of Leicester, Department of Cardiovascular Sciences and

²University Hospitals of Leicester

*Corresponding author.

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Aims. Alterations in cerebral blood flow (CBF) may contribute to the development of depression, and serve as a novel biomarker. The aim of this review is to summarise and synthesise the available evidence on alterations in cerebral haemodynamics in depressive disorders relative to healthy control populations.

Method. MEDLINE (1946–present), EMBASE (1947–present), Web of Science (1970–present), PsycINFO (1984–present), CINAHL (1976–present) and CENTRAL were searched using a predefined search strategy. Studies which compared the cerebral haemodynamics of adult patients (>18 years old) with depressive disorders against healthy controls (HC), by any imaging modality, were included. Studies with varying severity and chronicity of depressive disorder were included. A meta-analysis was conducted in four groups: 1) CBF (ml/min/100g) 2) Cerebral blood flow velocity (CBFv) (cm/s) 3) Combined CBF and CBFv 4) Ratio of uptake of radiotracer. A random effects model was used and heterogeneity and publication bias were assessed. Data are presented as mean difference (MD) or standardised mean difference (SMD) and 95% confidence interval (95% CI). A narrative synthesis of the remaining studies was performed.

Result. 87 studies met the inclusion criteria. CBF (ml/min/100g) was significantly reduced in patients with depression compared to

HC (15 studies, 538 patients, 416 HC, MD: -2.24 (95% CI -4.12 , -0.36), $p = 0.02$, $I^2 = 64\%$). There were no statistically significant differences between patients and controls in the other three outcomes. CBFv (cm/s): 6 studies, 305 patients, 198 HC, MD: -1.23 (95% CI -6.10 , 3.64 , $p = 0.62$, $I^2 = 65\%$). Combined CBF and CBFv: 20 studies, 804 patients, 573 HC, SMD: -0.16 (95% CI -0.32 , 0.01), $p = 0.06$, $I^2 = 51\%$. Ratio of uptake of radiotracer: 3 studies, 60 patients, 53 HC, MD: -0.11 (95% CI -0.11 , 0.11), $p = 1.00$, $I^2 = 0\%$). The narrative synthesis revealed varying results, with many studies identifying a decrease in CBF in depressed patients compared to controls, but other studies identifying an increase, or mixed results. Multiple regions of impairment were identified, including the anterior cingulate cortex and prefrontal cortex.

Conclusion. There was a statistically significant reduction in CBF in depressed patients compared to controls. The narrative synthesis revealed varying results, however specific regions of interest have been identified. Further research is needed to explore the effect of antidepressant medication, utilising different imaging modalities, and at different levels of disease severity.

Coping with a modern pandemic-an online survey of Anaesthesiologists in India during COVID-19

Punitha Chockalingam^{1*}, Kalpana Balakrishnan¹, Priyadarshini Natarajan², Surendran Veeraiah¹, Revathy Rajagopal³ and Vinodh Kumar Elumalai¹

¹Cancer Institute (WIA), Adyar; ²South London and Maudsley NHS Foundation Trust and ³HCG Cancer Hospital

*Corresponding author.

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Aims. In 2020, India was one of the worst affected countries by COVID-19. As the pandemic spread, creating undue pressure on health care workers (HCWs), there was an urgent need for the development of appropriate interventions to protect their mental health. This study aims to study the effect of COVID-19 on the mental health of anaesthesiologists in India and factors that influence their coping behaviour.

Method. The study was designed as a semi-structured, descriptive, cross-sectional, online open survey and conducted on Google forms between 21st May and 20th June 2020, among practicing anaesthesiologists across India. The participants were recruited by sending messages to their emails and through social media platforms. It created a small number of international respondents, who were also included (India = 301, rest = 23). The self-designed questionnaire had 30 questions in the form of multiple choices, checkboxes, linear scales and short comments. Informed consent was recorded at the outset. Details such as demographic characteristics, place and nature of work, pandemic related changes in duration or pattern of work, psychological symptoms during and after working hours, fears about quarantine, were collected in the survey. Statistical Analysis was performed using Statistical Package for Social Sciences (SPSS Statistics for Mac Version 21.0 IBM Corp., USA)

Result. Among the 324 participating anaesthesiologists, a prevalence rate of 64.8% for stress, 51.2% for anxiety and 65.7% for depression was noted, which was double the rate from pre-pandemic studies. Those between the ages of 30 and 50 ($p = 0.010$ OR:2.191) and working in government run ($p = 0.045$ OR:2.564) COVID-19 hospitals in India ($p = 0.002$ OR:2.018), were particularly stressed (33.3%) and anxious (38%) than the rest. Increased workload, contracting the virus and becoming an infectious source to their family (88.6%) were their prime concern. Formulating standard operating procedures (SOP) (66.7%)

and procuring personal protective equipment (PPE) (56.2%) were some of the challenges faced at work. Most of them recommended a congenial workplace (68.8%) and family support (60.8%) to help them work through their anxiety and fear, while a few reported considering leaving their career (34.8%) from fear of monetary loss and burn out (53.8%).

Conclusion. COVID-19 has changed the professional and personal life of anaesthesiologists in India. Irrespective of their workplace, their fears and challenges remain universal. Early identification of anxiety and depression and providing appropriate psychological support will prevent deep and enduring damages to the lives of these professionals.

Taking leadership over psychopathogenic environments

Alastair Cockburn^{1*} and Jane Morris²

¹Royal Infirmary of Edinburgh and ²Royal Cornhill Hospital

*Corresponding author.

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Aims. Do psychiatrists believe children are growing up in psychopathogenic environments that significantly contribute to mental ill-health? If so, do they feel empowered to change those environments? If not, how can psychiatrists be given a role where they can create meaningful change? Finally, how much responsibility can psychiatry usefully take for changing psychopathogenic environments?

Background. We define psychopathogenic environments as environments that predispose to mental ill-health. It is the psychological environment we live in - including income, the way we interact with others (e.g. social media, bullying), what we do with our free time, pressures at school and expectations of our peers. It is not discrete events (e.g. trauma) and stretches beyond life at home (where many ACE's occur).

Self-harm presentations to medical professionals amongst teenagers are on the rise, Universities report a fivefold increase in disclosure of mental health conditions in the last decade. Here we consider if psychopathogenic environments are part of the cause of these changes.

Method. A 10-item questionnaire distributed to Child and Adolescent Psychiatrists in NHS Lothian, NHS Grampian and Manchester University NHS Trust via a consultant in each Trust.

Result. All 14 respondents said psychopathogenic environments are "very important" contributors to mental ill-health. 13/14 say the environments have got worse in the last 10 years. 13/14 responded negatively about whether psychiatrists could change them. When given white space to tackle the problem they suggested changes were needed from Government including against poverty / inequality, education, public health nudges, more resources, MDT working and better access to leisure facilities. Given specific choices, 11/14 identified influencing Government as a major way forward.

Conclusion. This group of psychiatrists believe psychopathogenic environments are; 1) a very important contributor to mental ill-health 2) getting worse but 3) feel largely powerless to tackle it. It is a problem they think is important and want to engage in, but lack time, resources and struggle with the complexity of the problem. How therefore, can psychiatrist show leadership in this area? The two perspectives to consider how to empower psychiatrists to help create change are 1) how they can influence the environment for individual patients, 2) how they can influence public policy and government to make wider changes.

Is this the job of psychiatrists? Not alone, but as agents they have a unique insight and authority as both a lens for and director of these environments.