CPD Online summary note

The Neurodevelopmental Model of Schizophrenia

By Dr Brendan Kelly

Schizophrenia

- Schizophrenia is a common, disabling mental illness of unknown aetiology.
- The most powerful risk factor identified for schizophrenia is genetic inheritance.
- Studies to date suggest that the illness is a genetically complex disorder possibly involving multiple genes.
- Despite this substantial genetic effect, however, only approximately 50% of monozygotic twins show concordance for schizophrenia, indicating that other factors must also play a role in the aetiology of the illness.

Neural maldevelopment

- A range of environmental and developmental factors have been suggested to act in addition to, or in combination with, genetic factors.
- Recent decades have seen the accumulation of substantial evidence to support the idea that disturbances to the development of the brain and nervous system during gestation increase the risk of schizophrenia: this is the 'neurodevelopmental theory of schizophrenia.'
- Multiple lines of evidence have been developed to support this theory, including studies based on:
  - Disturbed craniofacial development
  - Neurological soft signs
  - Dermatoglyphic anomalies
  - Various other indices of prenatal neurodevelopmental disturbance.

Neurodevelopmental theory

- These findings are best integrated into a unified model of aetiology by using the life-course approach, which proposes that schizophrenia is caused by multiple risk-factors which act at different stages of life to independently, interactively and cumulatively affect the risk of illness.
- Certain combinations of risk factors may act in combination or synergistically with each other to increase overall risk of schizophrenia and the timing of exposure to both pre-natal and post-natal risk-factors may be critical.
- This approach represents a useful and novel way to integrate disparate research findings into a single model of aetiology
- This approach also suggests it may be possible in future to identify potentially remediable risk-factors or high-risk groups that may benefit from early intervention.