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Incubator electromagnetic fields alter newborns' heart rates

The electromagnetic fields produced by incubators alter newborns' heart rates, reveals a small study published ahead of print in the *Fetal and Neonatal Edition of Archives of Disease in Childhood*.

It is not clear what the long term effects might be, but this could have implications for babies born prematurely, who may spend several weeks or months in incubators, say the authors.

The research team assessed the variability in the heart rate of 43 newborn babies, none of whom was critically ill or premature.

The heart rates of 27 of these babies were assessed over three periods of five minutes each, during which the incubator motor was left running, then switched off, then left running again.

To see if noise might be a factor, because incubators are noisy, 16 newborns were exposed to "background noise," by placing a tape beside the baby's head, while the incubator motor was switched off.

The tape recording, which reproduced the sound of the incubator fan, was played for five minutes, paused for five minutes, and then played again for five minutes.

There were no differences in heart rate variability in the tape recorded babies. But there were significant differences in the heart rate variability of babies in the incubators.

The heart rate variability fell significantly during the periods when the incubator was switched on.

Decreased heart rate variability is a strong predictor of a poor prognosis in adult patients with heart disease and the general population, the evidence shows.

Heart rate variability is made up of low and high frequency components, and the ratio between the two is higher in premature babies than it is in adults.

The authors suggest that this may be influenced by the powerful electromagnetic fields created by incubators.

They conclude that modifications to the design of incubators could help, but they add that as yet it is unclear what long term consequences there may be of exposure to electromagnetic fields at such a tender age.

“International recommendations and laws set levels to safeguard the health of workers exposed to electromagnetic fields: newborns should be worthy of similar protection,” they say.

Source: British Medical Journal