Learning about the Safety of Drugs — A Half-Century of Evolution

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The safety of drugs has evolved over the past half century from a time when the FDA did not have authority over pharmaceutical companies. In 1961 legislation was introduced to compel companies to provide efficacy and safety data before a product could be sold. This was firmly opposed and might have failed, but for a worldwide crisis.

An epidemic of babies with severe limb-reduction defects broke out in Europe without any explanation despite numerous theories including that of a chemical warfare program originating in the USSR.

A German pediatrician performed a case-control study which identified a medication used against morning sickness for pregnant women as the agent, while an Australian obstetrician observing the same noted that the expecting mothers had taken the same compound, thalidomide, marketed under a different name.

Both drugs were withdrawn from the German and Australian markets but as there were no international collaborations in pharmacovigilance the compound continued to be sold elsewhere under different brand-names causing limb-reduction defects in over 10,000 children, and the death of unknown numbers of fetuses. It was never sold in the US as the FDA medical review officer refused approbation in 1961, noting the BMJ associated it with persistent neuropathic symptoms.

Methods of surveillance have been used since 1980, and applied systematically after the Vioxx crisis in 2007.

Much is still to be learnt for drugs treating new indications with impressive efficacy but substantial risk of toxic effects, e.g. the effective agent to treat leprosy and multiple myeloma – thalidomide.

Useful drugs can cause adverse effects. What must be identified is which drugs may pose unacceptable risk so as to constrain or prevent their use. **273 Words**