

Proposing Scientifically-Backed Medico Legal Paradigm Shifts to Contemporary Cerebral Palsy Jurisprudence

George Gregory Buttigieg^{1*}, Kirill Micallef-Stafrace²

¹Department of Obstetrics and Gynaecology University of Malta, Department of Obstetrics and Gynaecology, Plovdiv Medical University and Hospital St George, Bulgaria.

²Consultant Sports and Exercise Medicine, Mater Dei Hospital, Malta.

***Corresponding author:** George Gregory Buttigieg, ¹Department of Obstetrics and Gynaecology University of Malta, Department of Obstetrics and Gynaecology, Plovdiv Medical University and Hospital St George, Bulgaria

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Abstract

The jurisprudence of cerebral palsy litigation has a dark history based on grave misdirection from wrongful scientific facts which were pushed to the fore in the USA, commencing in the 1950's and medico-legally budding in the 1960's. Although, not clear to the great majority of cerebral palsy litigation stakeholders, bunkum science ruled the roost in most courtrooms of the civilised world. To this day, remnants and vestiges of these wrong scientific facts combined with various hiatuses of knowledge of the complex subject contribute to the occult unfairness of the related jurisprudence.

The article takes on the challenge of summarising the more crucial of medico-legal mistakes in the subject and proposes a number of paradigms shifts on a number of fronts of such jurisprudence. The neutralisation of the original damage inflicted by science and further perpetrated by the legal and judicial system is not an easy process. We speak of a number of fronts in a reform which must bring together the

scientifically illuminated, the leaders of the legal world and the luminaries of the court. And although there is evidence of great amelioration, much still remains pending, including the education of the public, which, approaching a lawyer of poor conscience may be wrongly enthused to take on extremely difficult courtroom battles.

Introduction

The last four decades of the twentieth century saw the first of several medico-legal epidemics, later levelling out into chronic plagues. Hence, any light thrown on any aspect of such litigation is of crucial importance. This article seeks to shed further light on extremely worrying facets of the scientific evaluations of the fate of cases facing alleged obstetric liability claims in cases of child cerebral palsy. Although here we focus on science, obstetrics and court challenge, it is clear that the lessons learnt be applied to all medical disciplines facing court, and indeed to all subjects where law must be led by science. Incidentally the subject of obstetrics lends itself further in that it tops the medical malpractice specialty league table- a 2015 Medscape Malpractice Report [4] (MMR survey) puts OBGYN at 85%, with Surgery at a second 83% ranking. Here we discuss a situation where obstetrics merges into major neurological damage with concurrent increased scientific complexity. Before proceeding with this article, it is crucial to make clear two points of fundamental belief for the author. The first is that not only does this article aim to defend the doctor where genuine malpractice exists, but that it seeks to have true justice rule, whichever direction it points. However, it must be justice which entirely respects the norms of contemporary science and such a ruling, would be ever so stronger whenever and however challenged.

Coning on Neurological Damage in Obstetric Cases

Obstetrics provides an extremely rich ground in providing numerous cases with neurological damage seeking compensation on grounds of liability due to alleged malpractice. This damage mostly centers on the new-born but cases of maternal damage presenting to the Courts and allegedly due to botched-up pregnancy/labour management are certainly not unknown. Most neurological cases concerning the new-born comprise issues of brain damage, predominantly in the form of cerebral palsy and other neurological damage associated with shoulder dystocia, breech delivery, etc. Maternal obstetric damage includes various degrees of brain damage resulting from eclampsia, sciatic nerve damage, various nerve entrapments leading to carpal tunnel syndrome and its aftermath, meralgia paresthetica, etc. By and far, of all cases, cerebral palsy of the new-born, even if presenting much later than birth, predominates in court.

The Scenario

73.6% of US obstetricians have faced litigation at some time or other - most often for alleged causation of fetal neurological impairment. 60% of all obstetric malpractice insurance premiums cover birth management- related CP allegation, with some premiums reaching astronomical sums such as \$200 000 per year in some states. These situations are deterring doctors from entering the speciality and encouraged numerous established others to leave OBGYN or limit themselves to gynecology while

abandoning obstetrics. And yet, medical negligence is proved in a mere 10 % of cerebral palsy Court trials, although no one can decry the psychological, physical, career and family damage inflicted by years of a court action. And cerebral palsy litigation is increasing. The severity of the stakes may be gathered from the fact that cerebral palsy constitutes 60-70% of the total yearly malpractice sum paid by the UK NHS Litigation Authority. Massive Court settlements, even reaching 200,000,000\$ are the name of the game and this is hardly surprising keeping in mind that the USA's 2003 collective expenditure for children born with cerebral palsy reached \$11.5 billion.

Often the crux of the plaintiff's lawyers' argumentation concentrates on proving that intra-partum hypoxia led resulting from obstetric mismanagement led to the cerebral damage underlying the plaintiff's cerebral palsy. This is not unfair or wrong where present. However, the mechanism by which this proof is put forward is what is briefly scrutinized here. It is here that the misdirection levelled by wrong science on court and therefore society has inflicted its major damage. And it is here, where, in spite of the fact that science has corrected its faults, one still finds poisonous vestiges from the last century still grossly harming the system. Furthermore, the mental myopia by which 20th century reasoning is still fogging the legal and court system is depriving plaintiffs of whole new horizons where their claims may be channeled. For, now, it is amply clear, that by widening the scrutiny well beyond the labour suite, one may find reasons for alleging mismanagement, which before were undreamt of. By now, it should be amply clear that this article seeks no preference of plaintiff or defendant but for scientific and medical truth to be the sole arbiter as far as the medical input is concerned.

Shifting a Series of Paradigms

In 'The Structure of Scientific Revolutions', Thomas Kuhn enriches the significance of the term paradigm beyond the ordinary meaning of "a typical example or pattern of something; a pattern or model",² by defining it as a "universally recognized scientific achievements that, for a time, provide model problems and solutions for a community of practitioners". In evaluating the present status of cerebral palsy jurisprudence to allot liability, law borrows from science in deriving liability from retrospective analysis of the multi-faceted aspects of labour management. In this situation we refer to those parameters where obstetric mismanagement, be it active or passive, may have incurred liability in the development of cerebral damage eventually presenting as cerebral palsy.

History of the Application of Scientific Tenets in Cerebral Palsy Litigation

In the 1950's, the USA witnessed the near simultaneous birth of a number of erroneously based scientific observations, which led to disastrously wrong conclusions centring around the incorrect fact that the majority of infantile cerebral palsy resulted from fetal hypoxia during maternal labour. Similarly, misdirected thinking started advocating intra-partum cardiotocography (IPCTG) monitoring as the tool which would clinch the occurrence of such hypoxia. This led to the logical notion that diligent scrutiny of IPCTG tracings in cases cerebral palsy would reveal in which cases there had been mismanagement and hence liability. Lawyers jumped on the bandwagon in droves. A generation of 'obstetric damage lawyers' was born. An estimated 10% in obstetric lawsuits occurred between 1970-1985. The concept and resultant litigation soon spread to Europe and beyond. The harm enacted on these completely never proven facts have done incalculable harm to an inestimable number of people. And to this day, it is clear

that there are patients, doctors, lawyers, magistrates and judges, whose thinking is still not clear on the issue.

Those who still believe IPCTG monitoring is the secret of preventing cerebral palsy ought to remember that the practice of essentially universal IPCTG monitoring has not even made a dent in the incidence of cerebral palsy incidence. It is frightening that, even now, a good seventy years later, when post-mortems of the involved science have confirmed and re-confirmed the wrongful logic of the time, cerebral palsy litigation including jurisprudence is still not entirely rid of the harm of the 'great cerebral palsy myth'. This often takes the completely erroneous turn of allotting the cause of cerebral palsy to a disturbed IPCTG tracing, by-passing the fact that only 50-60% of even severely abnormal IPCTG tracings are only associated with true true intra-partum hypoxia. This must be borne in mind along with the facts that 70% of cerebral palsy is due to pre-natal causes, 10% due to post-natal cases and only 20% due to birth causes, although no decries the importance of a fifth of the causes. Those cases known to be due to genuine intra-partum hypoxaemia are limited to 14.5% [13]. Furthermore, the modern jurist must look at potentially liable obstetric mismanagement which goes beyond the classically described such as mismanagement of IPCTG abnormalities e.g. missing a diagnosis of maternal hypothyroidism or chorio-amnionitis. Needless to say, there are genuine cases of obstetric malpractice leading to true cases of hypoxia-induced cerebral palsy. However, such jurisprudence needs to be based on the latest, proven scientific facts.

Issues of IPCTG and Cerebral Palsy Aetiology

It is pertinent to refer briefly to some points of this so-called relationship be aired at this juncture, albeit, bearing in mind the difficulty of dealing with this massively broad subject in a few paragraphs.

- The poor relationship of abnormal IPCTG patterns to brain damage was already indirectly referred to by Apgar et al. in 1955 no significant correlation was found between I.Q. [at 4 years] and oxygen content or saturation at any time during the first 3 hours of life. These observations have been repeatedly confirmed such as by Nelson, et al. in 1991.
- In the 14.5% of cerebral palsy cases are known to be genuinely due to intra-partum hypoxia, IPCTG clearly may help by exhibiting abnormal patterns. However, such abnormal patterns need must be confirmed as only 50-60% will be found to be accurate. In truly hypoxic induced cerebral palsy cases, IPCTG *may* show disturbances which *if confirmed* may indicate the presence of fetal hypoxia in the second stage of labour and if this is ignored, brain damage or death may result. Failure to recognise and correctly manage an abnormal IPCTG is still one of the most common causes of intrapartum stillbirths and related hypoxic induced brain and organ damage, not rarely leading to litigation.
- Although too broad a sub-heading to delve into here, one must refer to the inescapable responsibility of bearing in mind those intrinsic scientific drawbacks which plague ctg monitoring. Reference is being made to such factors as high specificity, low sensitivity, high inter and intra-observer error which are considered as problematic both to the clinical use of CTG as well to its medico-legal implications. Maybe the situation is understood somewhat better if one bears in mind that in view of the extremely low sensitivity the false positive rate of external fetal monitoring in predicting cerebral palsy exceeds 99%.

- Contrary to the beliefs generated in the last five decades of 20th century The last 5 decades of the 20th century, solely IPCTG abnormalities can never be equated with eventual cerebral palsy in any court of law. As stated, the use of IPCTG has not diminished the incidence of cerebral palsy, and one may also add, nor has it diminished infant mortality or other standards of neonatal wellbeing.
- It is amply clear that one of the paradigm shifts required in cerebral palsy jurisprudence concerns medico-legal importance attached to courtroom retrospective IPCTG interpretation while searching for liability of causation resulting from alleged obstetric malpractice.

All roads lead to Rome

The scientific truth sought by each shifting of the established paradigms must lead to one great medico-truth shedding light on the causation of any individual case of cerebral palsy seeking justice in court. Essentially, the medical aspects of the cerebral palsy jurisprudence generally employed in the 20th century must attain a form, which is essentially unrecognisable from that demanded by the current knowledge of science, if truth and justice is to be truly served.

1. Enters Hypoxic Ischaemic Encephalopathy (HIE)

HIE is a non-specific brain dysfunction occurring in 1.5-2.5 per 1000 live births in developed countries. A genuine case of cerebral palsy resulting from intra-uterine hypoxia *must* pass through the stage of HIE the existence of which may be proven along clearly established scientific criteria. At this point, we pause and stress a number of points:

- HIE is an inevitable precursor of cerebral palsy resulting from intra-uterine hypoxia.
- HIE can only be diagnosed by the establishment of certain scientific criteria which in turn can be reproduced in court if the necessary parameters had been observed and the established investigations performed.
- The establishment of the presence of HIE is not a proof of obstetric negligence and hence liability. This requires additional legal proof requiring jurisprudential evaluation.
- HIE may vary in its long-term outcome in a spectrum of grades ranging from nil to severe cerebral palsy and/or other conditions such as epilepsy. Such effects may become more noticeable with the baby's development and sometimes may present or be noticeable significantly later, including school- age.
- The inability to prove HIE owing to lack of proper investigative management of the new-born is a serious impediment to establish the presence of intra-uterine hypoxia but it may not necessarily obstruct justice to a wise jurist after evaluating all aspects of the case.

2. IPCTG -The Old Chestnut.

It is not correct to throw the ctlg monitor out of the labour ward window, for we have no substitute for daily clinical screening for intra-uterine hypoxia in labour. It is relatively coarse, definitely needs confirming before clinical action is taken but it is all we have in bread-and-butter obstetrics. However, it

is correct to throw out of the window the historically firm connotations of the non-discrete relevance of IPCTG monitoring. Without delving onto the well-trodden path of CTG limitations in detecting intra-uterine hypo- oxygenation in labour, one may cut to the chase and evaluate the role of IP- CTG as one of the criteria in the establishment of HIE. And here, one is struck by an amazing fact, namely the change of status and significance in the retrospective analysis of the scenario of cerebral palsy. What in the 20th century was essentially a primadonna status now suddenly is relegated to a second class criterion not even in establishing the presence of HIE but in shedding light of the timing of events of the hypoxic insult. It is time for the medical world to compensate for the scientific damage inflicted on society by the junk science it gave birth to in the 1950's. It is certainly time to ruthlessly destroy the past wrongful hegemony of IPCTG posing as arbiter of Standard of Obstetric Care.

3. Missing the Woods for the Trees

Another shift concerns the legal mind more than the Court jurist. Wrong assumptions based on old misconceptions, not unusually lead to court pleas which are weak and unfair to the plaintiff. It is not uncommon to find an allegation of obstetric negligence in a case of cerebral palsy specifically basing the court claim on an abnormal IPCTG. One example which may be quoted comes from *Gossland v East of England Strategic Health Authority*,²³ in which evaluation of the IPCTG tracing seems to have displaced other grossly more incumbent issues. In this case, the court concluded that: the cardiotocograph trace was not such as to lead an obstetrician of ordinary competence to take the view that Omar had a 'complicated tachycardia' such as to make it imprudent to administer oxytocin or to make it mandatory to take a blood sample from Omar's scalp. The cardiotocograph trace showed a tachycardia aptly described by Mr MacKenzie as a 'moderate' one which could not properly be characterized as a complicated tachycardia. In Dr Emmerson's words it was 'somewhat abnormal' but nevertheless 'a common occurrence'.

And so, simplifying a very complex case, the court ruled for the defendant in a case where the child, weighing a massive 5.22kg at birth., had undergone traumatic rotational forceps deliver while also suffering a shoulder dystocia, and fractured clavicle. So much for basing argumentation on an alleged IPCTG.

4. Cast your Net Wide- the need for a Temporal Shift in Scrutiny.

Present court reasoning, be it of plaintiff or defendant, tends to be limited to parturition. To some extent, one can hardly blame this. It is the time when the fetus is under maximal oxygen needs and when the correct, rightly timed management or lack of it may save the day or otherwise. However, the ever-increasing knowledge of the aetiology of cerebral palsy demands that limits are pushed well beyond olde worlde 'here be monsters' limitations. This means that in looking for potential liability in obstetric care management one must widening the lens to include far more than labour management and in fact also involving the whole antenatal period. Thus, antenatal care scrutiny may reveal missed clear or subtle signs of conditions such as LE, factor V Leiden, polycythaemia, thrombophilic disorders and autoimmune thrombocytopenia. Other examples which may be missed unless looked for include situations such as chorio-amnionitis in a patient who had persistently reported significant vaginal wetness indicating leaking liquor.

The following list provides examples where antenatal care scrutiny may prove fruitful:

- Low birthweight especially if below 1.5 kg.
- Prematurity especially before the 32nd week of pregnancy.
- Multiple births, particularly with an in – utero death of a co – twin.
- Assisted reproductive technology conceptions possibly associated with preterm delivery or multiple births or both.
- Antenatal infections such as chickenpox, rubella, CMV virus, bacterial infections associated with chorio – amnionitis.
- Severe and prolonged fetal jaundice such as that resulting from ABO or Rh sensitization. This may lead to brain damage including CP. Prolonged fetal exposure to elevated maternal serum bilirubin levels may not necessarily result in developmental or neurologic handicap of the fetus.
- Maternal medical conditions such as ignored (or undiagnosed) thyroid dysfunction or uncontrolled epilepsy.

5. Regular and official review of contemporary scientific input

- In this proposed shift, history speaks volumes.

Conclusion

There is no denying the fact that cerebral palsy jurisprudence is extremely complex and the scientific basis underlying it has proven extremely disappointing. Equally clear is the fact that jurisprudence does not move at the pace that medicine is used to. However, in cases of alleged liability in cerebral palsy cases, most courts in most developed countries need to ensure that modern, *proven*, facts pertaining to causation displace all notions based on dangerous and outdated bunkum science. Then, and only then, can justice, both to plain tiff as well as defendant, can be expected to be affected.

References

1. Buttigieg GG. (2016) Minimizing Obstetric Medico-Legal Litigation. *Int J Gynecol.* 4:22-30.
2. <http://www.medscape.com/features/slideshow/malpractice-report-2015/obgyn#page=2>
3. Freeman JM, Freeman AD. (2003) Risk Management Foundation. No-fault neurological compensation: perhaps it's time has come, again. *Harvard Med Inst Forum.* 5-6.
4. MacLennan A, Nelson KB, Hankins G, Speer M. (2005) Who will deliver our grandchildren? Implications of cerebral palsy litigation. *JAMA.* 2949130:1688-90.
5. Kuhn, Thomas S. (1996) *The Structure of Scientific Revolutions.* 3rd ed. Chicago, IL: University of Chicago Press. 2(2):1-174.
6. Buttigieg GG. (2018) Re-visiting the role of intrapartum cardio-tocography (I-P CTG) in cerebral palsy jurisprudence: Time to take cognizance. *J Pregnancy Reprod.* 1(5): 2-3.
7. Sartwelle TP, Johnston JC. (2015) Cerebral Palsy Litigation: Change Course or Abandon Ship. *J Child Neurol.* 30(7): 828-41.
8. Hinshaw K, Ullal A, Im Hinshaw, Aarti Ullal. (2007) Peripartum and intrapartum assessment of the fetus. *Anaesth Intensive Care Med.*8(8):331-36.
9. Buttigieg GG. (2018) Re-visiting the role of intra-partum cardio-tocography (I-P CTG) in cerebral palsy

- jurisprudence: Time to take cognizance. *J Pregnancy Reprod.* 1(5):2-3.
10. Graham EM, Ruis KA, Hartman AL, Northington FJ, Fox HE. (2008) A systematic review of the role of intrapartum hypoxia-ischemia in the causation of neonatal encephalopathy. *Am J Obstet Gynecol.* 199(6):587-95
 11. Apgar V, Girdany BR, McIntosh R, Taylor HC. (1955) Neonatal Anoxia: A Study of the Relation of Oxygenation at Birth to Intellectual Development. *Pediatrics* 15(6):653-62
 12. Nelson KB, Leviton A. (1991) How much of neonatal encephalopathy is due to birth asphyxia? *Am J Dis Child* 145(11): 1325-31.
 13. Macones GA, Hankins GDV, Sponge CY, Hauth J, Moore T. (2008) The 2008 National Institute of Child Health and Human Development Workshop Report on Electronic Fetal Monitoring: Update on Definitions, Interpretation, and Research Guidelines. *JOGNN.* 37(5): 510- 15.
 14. Alfirevic Z, Devane D, Gyte GM, Cuthbert A. (2017) Continuous cardiotocography (CTG) as a form of electronic fetal monitoring (EFM) for fetal assessment during labour. *Cochrane Database Syst Rev* 2(2): CD006066.
 15. Buttigieg GG. (2017) Lessons from the Great Medico-Legal Chapter of Cerebral Palsy. *J Neurol Disord.* 5(2):1- 5
 16. At the zenith of the Roman empire, a vast network of roads stretching for more than 400,000km (250,000miles) linked Rome to most of its conquered lands. Thus, Rome was connected through massive engineering projects to an empire stretching from Scotland in the North and Egypt in the South to Portugal in the West and Syria in the East.
 17. Buttigieg GG. (2020) Editorial. Electronic Fetal Monitoring (EFM) is Not Synonymous with Standard of Care". *EC Neurology.* 12:10-37.
 18. *Gossland v East of England Strategic Health Authority* [2008] EWHC 2175.
 19. Buttigieg GG. (2016) Cerebral Palsy: Medico-Legal Issues. *Phys Med Rehabil Int.* 3(2):1084.
 20. Buttigieg GG. Medico-Legal Litigation: The clinical contractual nature of the obstetric anaesthetist-patient relationship. *Malta Med J.* 26(1):44-46.
 21. Hoyme HE, Higginbottom MC, Jones KL. (1981) Vascular etiology of disruptive structural defects in monozygotic twins. *Pediatrics.* 67(2): 288-91.