Contraception in Sickle Cell Disease

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9th May 2018
- Background
- Standards
- Evidence
- Contraception choices and effectiveness
- Recommendations
Background

• Adverse maternal and perinatal outcomes associated with SCD

• Essential that pregnancies are planned & unintended pregnancies are prevented

• Effective contraception decreases health risks
Unmet need for contraception

- SCD cohort: High rates of unintended pregnancy: 64% in 1993, 53% in 2010 (Eissa AA, Tuck et al., 2013)
- General population: 1 in 6 pregnancies unplanned, 2 in 6 ambivalent and 3 in 6 planned: NATSAL-3 survey

https://doi.org/10.1016/S0140-6736(13)62071-1

- Reasons:
  - Access barriers
  - Confusion about safety of contraceptive options
  - Patient preferences/ myths/side-effects

(O’Brien et al., 2011; Whaley et al., 2015, Haddad et al., 2012; Smith-Whitley, 2014)
Standards

• Each woman, man or couple affected by SCD should be encouraged to have a reproductive life plan

• All women of childbearing age and all men with SCD should receive contraceptive counselling at least as part of annual review
Background evidence

• Limited number of good quality studies

• Cochrane review (Gomez M et al. 2007):

1 RCT (De Ceaulaer et al. 1982) DMPA v/s placebo in 25 patients, crossover design: non-significant trend towards reduced painful sickle episodes (OR 0.23; CI 0.05-1.02)
Systematic review (Haddad et al. 2012): 9 studies

Progestogen-only and combined hormonal contraceptives did not increase sickle cell crises & no increased risk of adverse clinical events.
Background evidence

Systematic review (Legardy & Curtis, 2006):

Progestogen-only contraceptives in SCD – no adverse clinical events, haematological or biochemical changes
Background evidence

- Other studies (de Abood et al. 1997, De Ceulaer et al 1982):

  Progestogen-only contraceptive users had less frequent & severe painful crises & improvement in biochemical & haematological parameters.
Background evidence

- Lack of evidence on the risk of VTE among combined hormonal users with SCD
- No change in markers of platelet activation, thrombin generation & fibrinolysis in COC users with SCD (Yoong et al. 2003)
- E & P did not reduce red cell deformability in vitro/in vivo (Yoong et al 1998, 1999)
Contraceptive choices

**Methods with no user failure** — they do not depend on you remembering to take or use them

<table>
<thead>
<tr>
<th>Method</th>
<th>What is it?</th>
<th>Effectiveness</th>
<th>Advantage</th>
<th>Disadvantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contraceptive injection</td>
<td>An injection of progesterone</td>
<td>Perfect use: over 99%</td>
<td>Lasts for eight or 13 weeks — you don’t have to think about contraception during this time.</td>
<td>Can’t be removed from the body so side effects may continue while it works and for some time afterwards.</td>
</tr>
<tr>
<td>Implant</td>
<td>A small, flexible rod put under the skin of the upper arm releases progesterone.</td>
<td>Perfect use: over 99%</td>
<td>Works for three years but can be taken out sooner.</td>
<td>It requires a small procedure to fit and remove it.</td>
</tr>
<tr>
<td>Intrauterine system (IUS)</td>
<td>A small, T-shaped, progesterone-releasing, plastic device is put into the uterus.</td>
<td>Perfect use: over 99%</td>
<td>Works for 3-5 years but can be taken out sooner.</td>
<td>Irregular bleeding or spotting is common in the first six months.</td>
</tr>
<tr>
<td>Intrauterine device (IUD)</td>
<td>A small plastic and copper device is put into the uterus.</td>
<td>Perfect use: over 99%</td>
<td>Can stay in 5-10 years depending on type but can be taken out sooner.</td>
<td>Periods may be heavier, longer or more painful.</td>
</tr>
<tr>
<td>Female and male sterilisation</td>
<td>The fallopian tubes in women or the tubes carrying sperm in men (vas deferens) are cut, sealed or blocked.</td>
<td>Perfect use: over 99%</td>
<td>Sterilisation is permanent with long or short-term serious side effects.</td>
<td>Should not be chosen if in any doubt about having children in the future.</td>
</tr>
</tbody>
</table>

**Methods with user failure** — you have to use and think about them regularly or each time you have sex

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<tr>
<td>Contraceptive patch</td>
<td>A small patch stuck to the skin releases estrogen and progesterone.</td>
<td>Perfect use: over 99%</td>
<td>Can make bleeds regular, lighter and less painful.</td>
<td>May be seen and can cause skin irritation.</td>
</tr>
<tr>
<td>Contraceptive vaginal ring</td>
<td>A small, flexible plastic ring put into the vagina releases estrogen and progesterone.</td>
<td>Perfect use: over 99%</td>
<td>Often reduces bleeding and period pain, and may help with premenstrual symptoms.</td>
<td>You must be comfortable with inserting and removing it.</td>
</tr>
<tr>
<td>Combined pill (COC)</td>
<td>A pill containing estrogens and progesterone, taken orally.</td>
<td>Perfect use: over 99%</td>
<td>Can be used by women who smoke and are over 35, or those who are breastfeeding.</td>
<td>Missing pills, vomiting or severe diarrhoea can make it less effective.</td>
</tr>
<tr>
<td>Progestogen-only pill (POCP)</td>
<td>A pill containing progesterone, taken orally.</td>
<td>Perfect use: over 99%</td>
<td>May slip off or split if not used correctly or if wrong size or shape.</td>
<td>Lasts pills, vomiting or severe diarrhoea can make it less effective.</td>
</tr>
<tr>
<td>Male condom</td>
<td>A very thin latex (rubber) or synthetic rubber sheath, put over the erect penis.</td>
<td>Perfect use: 95%</td>
<td>Can be put in any time before sex.</td>
<td>Not as widely available as male condoms.</td>
</tr>
<tr>
<td>Female condom</td>
<td>Soft, thin polyurethane sheath that loosely lines the vagina and covers the area just outside.</td>
<td>Perfect use: 95%</td>
<td>No physical side-effects, and can be used to plan as well as prevent pregnancy.</td>
<td>You need to use the right size. If you have sex again after spermicide is needed.</td>
</tr>
<tr>
<td>Diaphragm/vaginal cap</td>
<td>A flexible latex (rubber) or silicone device, used with spermicide, is put into the vagina to cover the cervix.</td>
<td>Perfect use: up to 99%</td>
<td>No physical side-effects.</td>
<td>Need to avoid spermicide or use a condom at fertile times of the cycle.</td>
</tr>
</tbody>
</table>

**PERFECT USE MEANS USING THE METHOD CORRECTLY EVERY TIME. TYPICAL USE IS WHEN YOU DON’T ALWAYS USE THE METHOD CORRECTLY.**

- Condoms are the best way to help protect yourself against sexually transmitted infections.
WHO Decision Aid on Contraceptive Effectiveness

Most Effective

- Implants, Female Sterilization, Vasectomy, IUD/IUS
- Injectables
- Pills, Patch, Vaginal Ring
- Lactational Amenorrhea Method
- Male condoms
- Diaphragm
- Cervical Cap, Sponge, Female Condoms
- Withdrawal, Fertility Awareness-based
- Spermicides

Least Effective

Adapted from World Health Organization. 2006.
UK Medical Eligibility Criteria for Contraceptive Use 2016
UK Medical Eligibility Criteria

• **Most** contraceptive users medically fit & can safely use any available contraceptive method

• **Some** conditions may pose risks

• Knowledge of these will remove unnecessary medical barriers

• Defines conditions and allocates medical eligibility categories 1-4
UKMEC Categories

- UKMEC 1  No restriction
- UKMEC 2  Advantages generally outweigh risks
- UKMEC 3  Theoretical/proven risks usually outweigh advantages
- UKMEC 4  Unacceptable health risk
UKMEC in Sickle cell disease

**Progestogen-only contraception: UKMEC 1**

- Subdermal Implant (Nexplanon®): 3 years
- Injectable: DMPA IM or subcut (Sayana-Press®): 13 week intervals
- LNG-IUS (eg. Jaydess®, Mirena®, Kyleena®): 3 - 5 years
- P-only pills (eg. Cerazette®): 1 pill daily

**Advantages:**
- Lower risk of VTE compared to combined hormonal contraception
- Possible reduction in acute painful events

**Side-effects**: unpredictable vaginal bleeding
Combined Hormonal contraception
Estrogen+Progestogen

UKMEC 2 for SCD

• COC pill (eg. Microgynon®) : taken every day with or without pill free break

• Combined transdermal patches (Evra®) - changed every week

• Combined vaginal ring (NuvaRing®) - changed every 21 days
Combined hormonal contraception (CHC)

- **Benefits**: predictable bleeds, ↓menstrual flow & pain
- **Risks**: ↑ risk of VTE (RR of about 2 compared to non-users);
  Absolute risk 9-10 events/10,000 users/year
- Differences in risk of VTE with COCs containing different progestogens
- COCs with levonorgestrel, norethisterone and norgestimate have the lowest risk

**Other co-existing medical conditions must be considered** – eg. h/o stroke or other cardiovascular conditions will contraindicate CHC
Copper IUD

UKMEC 2 for SCD

- Limited evidence from studies in SCD
- No theoretical safety concerns
- Side-effects: ↑ menstrual blood loss

- IUS may be preferable due to ↓ menstrual loss
Emergency contraception

Preventing pregnancy after unprotected sexual intercourse (UPSI)

- Copper IUD (most effective): (within 120 hrs of UPSI or 5 days of expected ovulation)

- Levonorgestrel 1.5 mg (Levonelle®) - (within 72 hrs of UPSI)

- Ulipristal acetate 30 mg (ellaOne®)(within 120 hours of UPSI)
Information to give to women
Counselling is KEY

- Efficacy of method
- How the method works
- Duration of use
- Safety
- Risk and possible side effects
- Non-contraceptive benefits
- Any potential drug interactions
- The procedures for initiation and discontinuation
- When to seek help
LARC methods

- More effective than pills (NICE, 2005)
- Administered less than once per cycle or month
- Three progestogen-only methods
  - intrauterine system
  - injectables
  - implants.
- The copper intrauterine device (non-hormonal)
Why does LARC matter?

- Very effective
- Safe
- Reversible
- Less user dependent
- Health benefits
- Suitable for most women
Recommendations - Summary

• No restrictions for use of Progestogen-only contraceptives (POP, injectables, implants, IUS) and barrier methods in SCD

• Advantages of use of CHC (pills, patches & rings) and IUDs outweigh risks
Recommendations - Summary

• Lack of evidence on whether increased VTE risk with CHC increases further in SCD

• Other co-morbidities may contraindicate use of a contraceptive method – Refer to UKMEC guidance
Recommendations - Summary

• LARC methods to be recommended as highly reliable and effective compared to pills and barrier methods

• Access to specialist contraceptive advice should be available
Recommendations - Summary

- Potential teratogenic effect of Hydroxycarbamide:
  - Sexually active couples should use contraception if one person is using Hydroxycarbamide
  - Hydroxycarbamide should be stopped prior to conception
https://www.fpa.org.uk/resources/leaflet-and-booklet-downloads
Thank you